

File 350:Derwent WPIX 1963-2004/UD,UM &UP=200445

File 347:JAPIO Nov 1976-2004/Mar(Updated 040708)

File 371:French Patents 1961-2002/BOPI 200209

File 348:EUROPEAN PATENTS 1978-2004/Jul W02

File 349:PCT FULLTEXT 1979-2002/UB=20040715,UT=20040708

Set Items Description

S1 8 AU='BENTLEY N' OR AU='BENTLEY N L' OR AU='BENTLEY N M' OR -
 AU='BENTLEY N P' OR AU='BENTLEY N R' [not relevant]

S2 1241100 LENS?? OR GLASS??

S3 8351 SUNGLASS?? OR EYEGLASS??

S4 0 S1 AND S2:S3

S5 184754 POLARIZ? OR POLARIS?

S6 0 S1 AND S5

File 155:MEDLINE(R) 1966-2004/Jul W3

File 5:Biosis Previews(R) 1969-2004/Jul W2

File 73:EMBASE 1974-2004/Jul W2

File 34:SciSearch(R) Cited Ref Sci 1990-2004/Jul W2

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec

Set Items Description

S1 33 AU='BENTLEY N' OR AU='BENTLEY N M' OR AU='BENTLEY N.' OR A-
 U='BENTLEY N.M.' OR AU='BENTLEY NICHOLAS M' OR AU='BENTLEY NI-
 CK' OR AU='BENTLEY NIHCOLAS' OR AU='BENTLEY NM'

S2 18 RD (unique items)

S3 18 Sort S2/ALL/PY,A [not relevant]

File 621:Gale Group New Prod.Annou.(R) 1985-2004/Jul 19

File 16:Gale Group PROMT(R) 1990-2004/Jul 19

File 160:Gale Group PROMT(R) 1972-1989

File 148:Gale Group Trade & Industry DB 1976-2004/Jul 19

File 47:Gale Group Magazine DB(TM) 1959-2004/Jul 19

File 570:Gale Group MARS(R) 1984-2004/Jul 19

File 633:Phil.Inquirer 1983-2004/Jul 16

File 718:Pittsburgh Post-Gazette Jun 1990-2004/Jul 19

File 731:Philad.Dly.News 1983- 2004/Jul 16

File 738:(Allentown) The Morning Call 1990-2004/Jul 16

File 635:Business Dateline(R) 1985-2004/Jul 16

Set Items Description

S1 12 (NICK OR NICHOLAS) (1W) BENTLEY

S2 7 RD (unique items) [not relevant]

File 764:BCC Market Research 1989-2004/Jun

File 635:Business Dateline(R) 1985-2004/Jul 16

File 608:KR/T Bus.News. 1992-2004/Jul 19

Set Items Description

S1 3 CO='AMERICAN POLARIZERS INC'

S2 3 RD (unique items)

S3 111963 DEMONSTRAT?

S4 0 S1 AND S3

2/7/2 (Item 1 from file: 635)

DIALOG(R) File 635:Business Dateline(R)

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0488055 94-41985

Reading company sees business in different light

Cleary, Michael J

Eastern Pennsylvania Business Journal (Allentown, PA, US), V5 N13 s1 p2

PUBL DATE: 940411
WORD COUNT: 1,047
DATELINE: Reading, PA, US
TEXT:

A Reading company shows off all the virtues of a small company--attention to quality, innovation, lack of bureaucracy.

But for a small company, **American Polarizers Inc.** does a lot. It has four major product lines--aircraft sun visors for pilots and passengers; clip-on sunglasses; circular polarizers used in emissive readouts and displays, primarily for scientific and medical uses; and "Polarmotion" patterned polarizers used in retail point-of-purchase and educational applications. These last look much like marquee lights moving in different shades of gray.

What do these disparate products have to do with each other? "Nothing, other than it relates to polarization of visible light," says William H. Bentley, president and owner.

"They don't interconnect well, which is part of their charm," he adds.

With 24 employees, the company broke the \$1 million mark in sales in 1993, and its scientific product line has grown at a 30 percent clip in each of the last three years, according to Mary Dybalski, director of marketing.

But even with all that growth and the prospect of more to come, Bentley, 62, wants to keep the company small.

"There are significant disadvantages to getting larger--all the regulations," he says. "When the number of employees reaches 50, the government requires you to have one employee working full-time on an equal-opportunity manual."

Bentley also believes in maneuverability. "Large organizations don't change quickly," he states. "Maybe it's not just size, it's attitude."

His son, **Nick**, operations manager, says, "We'll bend over backwards for a customer."

It may be as simple as putting a gasket on a polarizer, as Nick says one customer requested. The company's largest competitor wouldn't do it. American Polarizers did and got the job.

The company probably wasn't as willing to help when the elder Bentley bought it in 1978--and certainly not as successful.

American Polarizers Inc. was founded in 1960 by SmithKline and Pennsylvania Optical Co., which later sold its share to the pharmaceutical giant. SmithKline sold it when it focused on its core business after its anti-ulcer drug Tagamet took off.

Before Bentley bought it (for an undisclosed price), the business "didn't ever make a profit, although the way SmithKline did their accounting, I don't think they ever knew," he says.

Bentley had his work cut out for him. SmithKline had stopped making glare-reducing aircraft windows, which he considered a big mistake. In one area, the salaries of two salespeople combined eclipsed sales of their whole department. Also, "The organization seemed very divisive. People didn't talk to each other."

Bentley came in with a background in engineering at Cincinnati Milacron Lathe and Tool Co. and Rockwell International, as well as a Harvard M.B.A. He thought he could develop potential that SmithKline had ignored.

So how did he bring together all four businesses? "The answer to that is 'energetically,'" he says, sitting forward and pointing in the air with mock bombast.

The trick is that American Polarizers builds in the "maximum intellectual content of the product," he says.

It's not in the clip-on business. adds Nick. who describes that as a high-volume. low-margin commodity handled out of garages. "It's an ugly business."

"Two steps up from rice." his father adds.

The scientific market is their main focus. and has propelled the company's growth for the past five years. "Flat-panel displays are becoming the thing," says the elder Bentley. Company officials claim to control up to 99 percent of the polarized aircraft window market, and export to South America. South Africa and Europe.

The company is profitable (but doesn't disclose how much) and claims practically no staff turnover. Five employees have been there 20 years or more. Some are over 70 years old.

It's a "very collegial. a very participative" atmosphere. the Bentleys say.

"The lens department looks more like a ladies' quilting bee," says Bentley. "One says 'I'm tired of this. let's switch.' Then the other says, 'OK. you do this and I'll do that.'"

The building. Metropolitan-Edison's old operations headquarters on South Seventh Street. doesn't really look like a factory on the inside. "It's an odd manufacturing environment. Unique," with separate product lines that have little to do with one another. says Bentley.

"You have four different products with four different production lines and four different ways of making them," says Bentley. "And four different ways of marketing them." he adds.

But everything is tied together by the principle of polarization. Ordinary light in a room or outdoors is random--traveling in all directions, radiated by lamps, the sun or stars and then reflected by almost everything.

"Linear" polarizers act like a filter, admitting only the light that is traveling in a particular plane. Vertical light might pass through, but horizontal light gets shut out.

"Circular" polarizers change the direction of light as it passes through. This makes them ideal for screening out background radiation and glare. Light gets in but doesn't get out.

American Polarizers makes its products in layers through a process called optical bond fusion. Products frequently use 10 and even up to 13 layers.

The polarizer itself resembles Saran Wrap. Where a faint wrinkle or a dust mote as small as 0.7mm can spoil the whole product, working with the delicate plastic can be a frustrating and costly business.

A 3-by-6-inch bar of polarizer, wrapped in brown paper, costs \$500.

"It takes a special touch. It's not hard to do \$1,000 worth of damage in a day," says Nick. The product is re-inspected with each succeeding layer so as not to compound any damage. Also, an air filtering system runs continuously, filtering out particles larger than 0.5 microns.

They complain that other American companies avoid doing quality work.

"We run into so many people who say they won't do it. It's crazy." says Nick.

For now, the elder Bentley continues to enjoy running his company--"It's a lot more fun," he says--and plans numerous projects.

These include obtaining ISO-9000 certification, further work with Polarmotion and advanced technology projects the company can't discuss.

A New Mexico astronomer who's checked tells American Polarizers it makes the largest polarizer in the world, at 27 inches by 27 inches, but Bentley is working on a way to make one even larger.

Maybe that's a job for a big company somewhere, but nobody seems to

have told Bentley. He'd probably ignore that advice anyway.
Copyright Eastern Pennsylvania Business Journal 1994

2/7/3 (Item 1 from file: 608)
DIALOG(R)File 608:KR/T Bus.News.
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07140892 (THIS IS THE FULLTEXT)
Reading, Pa., Firm Sells Light-Filtering Products All Over Globe
Jon Fassnacht
Reading Eagle, Pa
October 05, 2002
TEXT: By Jon Fassnacht, Reading Eagle, Pa.

Oct. 5--**Nicholas K. Bentley** surveyed American Polarizers Inc.'s labyrinth-like headquarters on South Seventh Street and described the irony of his company's global success.

"No one knows we're here," the firm's president said. "We make things for companies around the world, but very few people around the area know who we are."

Despite its obscurity with Berks residents, American Polarizers has carved out a niche making a variety of products that are used in items such as airplane windows, computers and sunglasses.

As its name suggests, its specialty is polarizers -- items that filter out certain types of light, such as reflective glare. Polarizers also can be used in front of computer displays to improve readability.

But Bentley, 39, of Fleetwood says the company has branched out, and has begun incorporating silk-screen and laser cutting into its palette.

Founded in 1962, American Polarizers began as a partnership between Smith Kline and Pennsylvania Optical. In 1978, Bentley's father, William H., bought the business. Five years ago, William Bentley retired and handed the reins to his son.

The 16-employee business does work for about 650 clients, ranging from the local firm Reading Avitat, Bern Township, to foreign sunglass-makers Boloe and Luxottica.

Perhaps its most impressive product is Polarmotion, a process trademarked by the company, which uses a combination of film, polarizers and intermittent lights to create the illusion of movement on translucent signs. Polarmotion has been used on a variety of signs, often popping up on beer advertisements.

The company's uniqueness assures a dearth of competitors in the area, and Bentley said due to corporate buyouts, its national competition is becoming diluted as well.

"There were a few national companies that started out like us: a small business making the same types of products that we do," he said. "But then they were bought out by larger companies for a very specific service, and because of that they became extremely streamlined and many of their services fell by the wayside."

Although the company already takes on an impressive workload, Bentley said he has hopes to expand to include the field of LCD, or liquid crystal display, which is most commonly used on the display of Palm Pilots.

"Many companies are getting into LCD and trying to make it brighter and more readable," he said. "But I'm not totally convinced about getting into the field because some other companies are being backed by big businesses, such as DuPont."

But even if American Polarizers sticks to its standards, the information superhighway has allowed it to attract global customers, even if it does remain a bit of a secret in its hometown.

ASRC Searcher: Jeanne Horrigan
Serial 10/602110
July 20, 2004

5

"The Internet has been such a boon to our company," Bentley said.
"It's tripled our sales. When people search the Web for these types of products, a lot of times they end up on our doorstep."

AMERICAN POLARIZERS INC.

Address: 141 S. Seventh St.

Phone: 610-373-5177.

Web site: www.apioptics.com.

President: Nicholas K. Bentley.

Employees: 16.

Founded: 1962.

Specialties: Sunglass lenses, computer-display filters, aircraft windows, Polarmotion, silk-screen and laser cutting. National clients include Raytheon Co. and Agilent Technologies Inc.

To see more of the Reading Eagle, or to subscribe, go to
<http://www.readingeagle.com>

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Business News.

INTERNATIONAL POLARIZER, Inc.

Polarscenes

Polarscenes are Point-of-Purchase displays that dramatize the advantage of polarized lenses to consumers. When the consumer looks at the Polarscene without polarized lenses he sees part of the scene. When the consumer looks at the same scene through polarized lenses he sees additional information. for example when the consumer looks at the Fishing Polarscene he sees the fisherman, his rod and canoe. With polarized lenses he sees the fish!

This simulates what happens when a sportsman uses polarized lenses.

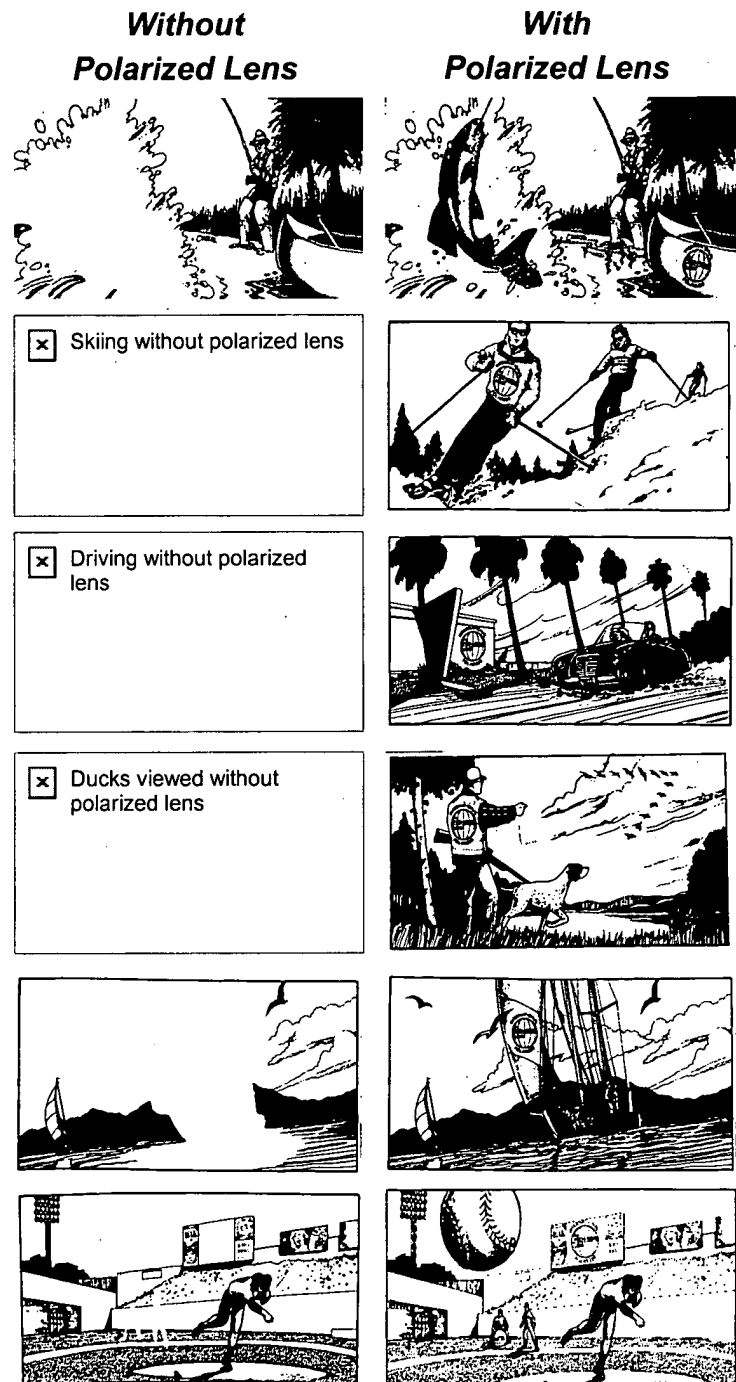
Their novelty generates considerable interest attracting attention to the retail display. Often an individual will show a friend or companion the display with Polarscenes and demonstrate the effect.

Six Polarscenes are available:

Fishing
Skiing
Driving
Hunting
Sailing
Baseball

Each illustrates an activity where the enjoyment of the participant will be enhanced by polarized lenses.

Each of the Polarscenes is available in the size 6 inch x 3 inches x 0.015 inch, with or without an adhesive backing. The Fishing Polarscene is also available in a smaller size, 1.8 inch x 1 inch x 0.015 inch and a larger size 19 inch x 6 inch x 0.015 inch.



[Home](#) | [Linear Polarizers](#) | [Sunglass Polarizers](#) | [Polarscenes](#) | [Retarder Sheets](#) | [Circular Polarizers](#) | [Publications](#)

**INTERNATIONAL
POLARIZER, Inc.**

**320 Elm Street
Marlborough, MA 01752**

**Tel: 508/481-7495
Fax: 508/481-0222
E-mail: sales@intl-polarizer.com**

INTERNATIONAL POLARIZER, Inc.

Wave Retarder Sheets

Retarder Sheets are clear birefringent materials that change the phase of a polarized beam of light. Upon passing through the sheet, light polarized in one direction is shifted in phase relative to light polarized in the perpendicular direction. By controlling the magnitude of birefringence a desired phase shift (retardation) can be introduced in one wave with respect to the other.

The relationship between retardation angle, (δ), birefringence (Δn), thickness of the sheet (τ), wavelength of light (λ) is:

$$\delta = 360^\circ \frac{\Delta n \tau}{\lambda}$$

Retardance in nm is defined as $\Delta n \tau$

A quarter wave retarder has a phase shift of 90° . That is $\Delta n \tau = \lambda/4$. For wavelength (λ) at the center of the visible region (560nm), a quarter wave film would have $\Delta n \tau = 140\text{nm}$.

A quarter wave film can be used to convert linearly polarized light to circularly polarized light.

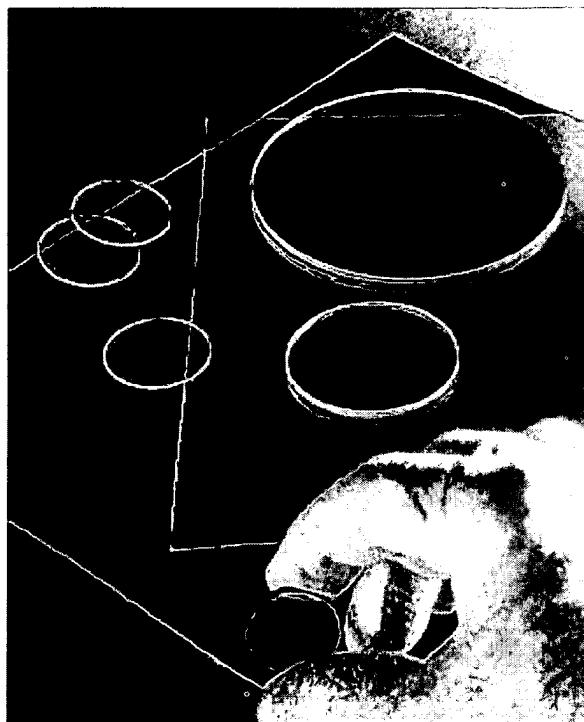
A half wave retarder introduces a phase shift of 180° . That is $\Delta n \tau = \lambda/2$. For a wavelength (λ) at the center of the visible region (560nm), a half wave film would have $\Delta n \tau = 280\text{nm}$.

A half wave retarder can be used to rotate the plane of polarization 90° , i.e. from the horizontal to the vertical plane.

A new use of retarder films is in optical reading of magnetic data storage media. When linear polarized light is reflected from certain magnetized films, its polarization state is modified. Inserting a retarder of proper retardation angle into the beam restores the light to its original polarization and permits the state of the magnetic media to be read accurately.

International Polarizer manufactures large aperture retarder films. Standard size is 17 inch x 1 meter x 0.03 and/or 0.01 inch panels. The films are clear with transmittance of 92% (4% reflection occurs on the front and back surfaces). Phase uniformity is better than 8% over the entire film.

International Polarizer maintains the world's largest inventory of retardance values in stock. Call the Sales office for values in current inventory available for prompt shipment or to inquire about a special



production run.

A review of phase retarders can be found in "Contemporary Optics for Scientists and Engineers" by Nussbaum and Phillips, published by Prentiss Hall, Englewood Cliffs, NJ.

[Home](#) | [Linear Polarizers](#) | [Sunglass Polarizers](#) | [Polarscenes](#) | [Retarder Sheets](#) | [Circular Polarizers](#) | [Publications](#)

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Serial 10/602110

July 20, 2004

File 6:NTIS 1964-2004/Jul W3
 File 8:Ei Compendex(R) 1970-2004/Jul W2
 File 65:Inside Conferences 1993-2004/Jul W3
 File 94:JICST-EPlus 1985-2004/Jun W4
 File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Jun
 File 34:SciSearch(R) Cited Ref Sci 1990-2004/Jul W2
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
 File 35:Dissertation Abs Online 1861-2004/May
 File 5:Biosis Previews(R) 1969-2004/Jul W2
 File 18:Gale Group F&S Index(R) 1988-2004/Jul 14
 File 48:SPORTDiscus 1962-2004/Jun
 File 111:TGG Natl.Newspaper Index(SM) 1979-2004/Jul 16
 File 62:SPIN(R) 1975-2004/May W4
 File 71:ELSEVIER BIOBASE 1994-2004/Jul W2
 File 95:TEME-Technology & Management 1989-2004/Jun W1

Set	Items	Description
S1	90	POLARI?ED() (LENS?? OR GLASS?? OR EYEWEAR OR SUNGLASS?? OR - EYEGLOSS??)
S2	1988422	VISUAL() INDICIA OR IMAGE OR IMAGES OR PHOTO OR PHOTOS OR P-HOTOGRAPH? ? OR SNAPSHOT? ? OR PICTURE OR PICTURES
S3	960289	FILM
S4	2156742	COAT??? OR LAYER??
S5	5622	SINGLE() (PLANE OR AXIS) (2W) LIGHT OR LIGHT (2W) SURFACE
S6	1174651	REFLECT?
S7	3573	(AMBIENT OR UNPOLARI?ED OR RANDOM??()) POLARI?ED() LIGHT
S8	1599766	TRANSMIT? OR TRANSMISSION
S9	6081	GLARE
S10	3	S1 AND S2 AND S3
S11	3	RD (unique items)
S12	12	S1 AND (S6 OR S9)
S13	23	S5 AND S7
S14	0	S12 AND S13
S15	0	S1 AND S13
S16	0	S9 AND S13
S17	12	S12 NOT S10
S18	11	RD (unique items)
S19	0	S18/2004
S20	23	S13 NOT S11:S12
S21	17	RD (unique items)
S22	1	S21/2004
S23	16	S21 NOT S22
S24	16	Sort S23/ALL/PY,A
S25	5	S1 AND S9
S26	0	S25 NOT S11:S13

11/7,K/1 (Item 1 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

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05365385 E.I. No: EIP99094789965

Title: Fast holographic-like stereograms display using shell rendering and a holographic screen

Author: de Mendonca, Candido F.X.; Falcao, Alexandre X.; Vannini, Cesar A.C.; Lunazzi, Jose J.

Corporate Source: State Univ of Campinas, Campinas, Braz

Conference Title: Proceedings of the 1999 Medical Imaging - Image Display

Conference Location: San Diego, CA, USA **Conference Date:**

19990221-19990223

Sponsor: SPIE

E.I. Conference No.: 55282

Source: Proceedings of SPIE - The International Society for Optical Engineering v 3658 1999. p 484-492

Publication Year: 1999

CODEN: PSISDG ISSN: 0277-786X

Language: English

Document Type: JA; (Journal Article) Treatment: A; (Applications)

Journal Announcement: 9910W5

Abstract: Display systems relying on computer graphics techniques usually create 2.5D **image** display on a 2D screen. To obtain 3D **image** display, most systems uses auxiliary devices or viewing tricks, such as **polarized glasses**, virtual reality helmet, detection of observer's location, divergent viewing, etc. We call these systems stereoscopic. A system that can display 3D **images** in a natural way (i.e. without auxiliary devices or viewing tricks) is called a self-stereoscopic system. We know that stereoscopic systems do not have horizontal parallax such as seen in holograms, which display continuum parallax. In this paper, we introduce a new technique based on shell rendering to discretize horizontal parallax by coding several views of the object forming a holographic-like stereogram and a new self-stereoscopic 3D display system to visualize holographic stereograms on a holographic screen (i.e. a transparent **film** with grating and focusing optical properties). We also demonstrate the new system using medical **image** data. (Author abstract) 16 Refs.

Descriptors: Computer generated holography; Three dimensional computer graphics; Virtual reality; Medical imaging; **Image** compression; Pattern matching

11/7,K/2 (Item 1 from file: 99)

DIALOG(R)File 99:Wilson Appl. Sci & Tech Abs

(c) 2004 The HW Wilson Co. All rts. reserv.

2644961 H.W. WILSON RECORD NUMBER: BAST03156543

Atypical Stereo

Moltenbrey, Karen;

Computer Graphics World v. 26 no7 (July 2003) p. 44-6, 48

DOCUMENT TYPE: Feature Article ISSN: 0271-4159

ABSTRACT: The IMAX **film** Ghosts of the Abyss uses new high-definition and stereo camera technology to give viewers a 3-D viewing experience of the Titanic. Viewed through **polarized glasses**, the **film** shows the ship's interior as it is now, with superimposed ghost passengers, and gives the viewer the feeling of being on the dive team. The **film** was created using 2 remotely operated vehicles built to be small and light to enable previously unfilmed areas of the ship to be filmed.

DESCRIPTORS: ...Motion **pictures** --;

11/7,K/3 (Item 1 from file: 18)

DIALOG(R)File 18:Gale Group F&S Index(R)

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03869481 Supplier Number: 59323228

IMAX: movies with a third dimension that makes you duck. (Technology Information) (Statistical Data Included)

Kushner, David

The New York Times, pD12(N) pG12(L)

Feb 10, 2000

ABSTRACT:

Imax Corp. is producing and screening 3 dimensional movies. The films are recorded on 70mm cameras equipped with 2 lenses and 2 rolls of film. The resulting films are shown using 1 of 2 methods where the camera is synchronized with viewers audience members wear like glasses. In the first method, a mechanical shutter on the projector alternates the left and right images to give the illusion of depth. In the second, the film projector alternates between illuminating the left and right films, which are shown and viewed through polarized lenses.

COMMENTS: Imax Systems Corp.: Imax Corp. is producing and screening 3 dimensional movies.

PRODUCT NAMES: 3861381 (Motion Picture Cameras, 35 & 70mm)

18/6/2 (Item 2 from file: 6)

1287819 NTIS Accession Number: DE87000395

High-Definition Television Evaluation for Remote Handling Task
Performance
1986

18/6/3 (Item 3 from file: 6)

1286915 NTIS Accession Number: AD-D012 660/7

Real-Time High-Resolution 3-D Large-Screen Display Using Laser-Activated
Liquid Crystal Light Valves
(Patent)
Filed 15 Apr 85 patented 18 Nov 86

18/6/4 (Item 1 from file: 94)

05404254 JICST ACCESSION NUMBER: 03A0127652 FILE SEGMENT: JICST-E
Three-dimensional large-screen display with reflection -mode spatial light
modulators and a single-projection optical system: Analysis of a
retardation modulation method., 2003

18/6/6 (Item 1 from file: 5)

0014465084 BIOSIS NO.: 200300433803
Polarized lens with oxide additive
2003

18/6/7 (Item 1 from file: 18)

03082427 Supplier Number: 48489439
Polaroid reveals a shady sight on I-83.
May 18, 1998

18/6/8 (Item 2 from file: 18)

01932590 Supplier Number: 43284114
Computercizing could become the newest fitness trend
Sept 7, 1992

18/6/9 (Item 3 from file: 18)

01185487 Supplier Number: 40846547
Exotic CAD
July, 1989

18/6/10 (Item 1 from file: 62)

19980910
00807734

Three-dimensional large-screen display with reflection -mode spatial
light modulators and a single-projection optical system: analysis of a

retardation-modulation method

18/6/11 (Item 1 from file: 95)
00568678 E92044272029
Designing efficient full spectrum polarized lighting systems for general interior lighting
(Entwurf eines effizienten Beleuchtungssystems mit vollstaendigem polarisiertem Spektrum fuer die allgemeine Innenbeleuchtung)
1991

18/7/1 (Item 1 from file: 6)
DIALOG(R)File 6:NTIS
(c) 2004 NTIS, Intl Cpyrght All Rights Res. All rts. reserv.
1823412 NTIS Accession Number: AD-A282 125/4
Effects of Various Quality Polarized Lenses on Color Vision, Stereopsis, Visual Acuity, and Contrast Sensitivity
(Doctoral thesis)
Cates, T. O. ; Davis, J. A. ; Guzman, S. A.
Air Force Inst. of Tech., Wright-Patterson AFB, OH.
Corp. Source Codes: 000805000; 012200
Report No.: AFIT/CI/CIA-94-060
May 94 22p
Languages: English Document Type: Thesis
Journal Announcement: GRAI9421
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A03/MF A01
Country of Publication: United States

Polarized sunglasses are commonly used for **glare** reduction in tasks such as driving and in outdoor recreation such as fishing. These glasses are produced by many manufacturers and offered at a widely variable expense to the consumer. Studies of visual performance changes from plain tinted sunglasses including visual acuity, contrast sensitivity, stereopsis, and color discrimination have been completed in the past, but these factors have not been studied with tinted **polarized lenses**. In this study, three groups of **polarized sunglasses** were assembled based on relative retail prices. The results of this study indicate that tinted **polarized lenses** affect the same chances that plain tinted lenses do, and the least expensive lenses were found to perform as well or better than the more expensive lenses in these four visual performance categories.

18/7/5 (Item 2 from file: 94)
DIALOG(R)File 94:JICST-EPlus
(c)2004 Japan Science and Tech.Corp(JST). All rts. reserv.
02202990 JICST ACCESSION NUMBER: 94A0869694 FILE SEGMENT: JICST-E
Sun Glitter Influence on a Proper Look-out and the Evaluation of Sunglasses.
FURUSHO MASAO (1); TOMONAGA MASAOKI (2); IMOO SHUSAKU (3)
(1) Kobe Univ. of Merc. Mar.; (2) Tokyo Medical College; (3) Minist. of Transp., Inst. for Sea Train.
Nippon Kokai Gakkai Ronbunshu(Journal of Japan Institute of Navigation),
1994, NO.91, PAGE.131-140, FIG.8, TBL.5, REF.8
JOURNAL NUMBER: F0535ABJ ISSN NO: 0388-7405
UNIVERSAL DECIMAL CLASSIFICATION: 656.6.05/.07

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: The sun glitter caused by the **reflection** of the direct solar radiation. This report is the experimental study of the sun glitter influence on the visual performance, and of **the most effective sunglasses which can reduce the sun glitter influence** for the watch-keeping seafarers on the navigation bridge. The instruments are two types of device, one is the vision tester called OPTEC-2000 which can measure the contrast sensitivity; the other one is the flicker tester. The results obtained from this experiment on board are as follows; 1. The mean level of the luminance of the sea surface below the horizon at approximately one degree is 2×10^5 cd/ m² . The maximum level is 1×10^6 cd/ m² . This sun glitter influence occurs after sunrise and again before sunset. 2. The sun glitter is a disability **glare** which lowers the visual performance greatly. 3. Evaluation of sunglasses. (1) The use of sunglasses has the effect of counteracting the reduction of visual performance caused by the sun glitter. (2) The most effective sunglasses to counteract the sun glitter influence: The transmitted color is the green group which has the characteristics of absorbing the wave length of the visible range, of course including the ultraviolet radiation. There is a tendency that the 20% transmittance of the green group sunglasses has a little influence on the visual performance. (3) There are some cases where **polarized sunglasses** are used to look through the windshield of the navigation bridge. This causes stripes to appear on the visual field. 4. For the watchkeeping seafarers on the navigation bridge, it is important to use the sunglasses mentioned above in order to combat the effects of the reduction of visual performance caused by the sun glitter influence. (author abst.)

24/6/1 (Item 1 from file: 5)

0002474415 BIOSIS NO.: 197866060899

SILICIC-ACID INCORPORATION IN MARINE DIATOMS ON LIGHT DARK CYCLES USE AS AN ASSAY FOR PHASED CELL DIVISION

1978

24/6/2 (Item 2 from file: 5)

0003004426 BIOSIS NO.: 198070035913

SEASONAL PATTERNS AND AGE SPECIFIC VARIATION IN THE SURFACE ACTIVITY OF A POPULATION OF DESERT SCORPIONS IN RELATION TO ENVIRONMENTAL FACTORS

1980

24/6/3 (Item 3 from file: 6)

1058518 NTIS Accession Number: N83-30289/3

Display Subsystems with Liquid Crystals

(Final Report, May 1981)

Apr 83

24/6/4 (Item 4 from file: 35)

877589 ORDER NO: AAD85-06227

COMPUTATIONAL APPROACHES TO COLOR CONSTANCY

Year: 1985

24/6/6 (Item 6 from file: 6)

1592654 NTIS Accession Number: AD-A236 641/7

Experimental Characterization of the Perceptron Laser Rangefinder
(Technical rept)
Jan 91

24/6/7 (Item 7 from file: 6)

1781661 NTIS Accession Number: AD-A273 682/5

Standardizing Shipboard Lighting: Light Fixtures and Light Bulbs on U.S. Navy Ships
(Interim rept. Oct 91-Jun 92)
16 Jun 92

24/6/8 (Item 8 from file: 35)

01410580 ORDER NO: AADAA-IC408839

ABSORPTION OF LIGHT BY SURFACE WATER
Year: 1994

24/6/9 (Item 9 from file: 34)

04361743 Genuine Article#: RY461 Number of References: 33

Title: SHAPE FROM SHADED RANDOM SURFACES (Abstract Available)

24/6/10 (Item 10 from file: 5)

0011078558 BIOSIS NO.: 199799712618

Evaluation of the growth of Vallisneria americana Michx. in relation to sediment nutrient availability
1995

24/6/13 (Item 13 from file: 8)

05056793

Title: Active laser radar (LIDAR) for measurement of corresponding height and reflectance images

Conference Title: New Image Processing Techniques and Applications: Algorithms, Methods, and Components II

Publication Year: 1997

24/6/14 (Item 14 from file: 8)

05101428

Title: Active laser radar for high-performance measurements

Conference Title: Proceedings of the 1998 IEEE International Conference on Robotics and Automation. Part 2 (of 4)

Publication Year: 1998

24/6/15 (Item 15 from file: 34)

07591370 Genuine Article#: 185VN Number of References: 35

Title: Light and diel vertical migration: spectral sensitivity and light avoidance by Mysis relicta (ABSTRACT AVAILABLE)

Publication date: 19990200

24/6/16 (Item 16 from file: 95)

01701384 20021200478

Homeotropic and planar orientation of liquid crystals on a photopolymer coated surface irradiated with UV-light
2002

24/7/5 (Item 5 from file: 6)

DIALOG(R) File 6:NTIS

(c) 2004 NTIS, Intl Cpyrght All Rights Res. All rts. reserv.
1535459 NTIS Accession Number: NTN90-0582

Filter Enhances Fluorescent-Penetrant-Inspecting Borescope: A slip-on eyepiece suppresses harmful radiation and seals out ambient light

(NTIS Tech Note)

National Aeronautics and Space Administration, Washington, DC.

Corp. Source Codes: 011249000

Jul 90 1p

Languages: English

Journal Announcement: GRAI9024

FOR ADDITIONAL INFORMATION: Contact: NASA Technology Transfer Div., PO Box 8757 BWI Airport, MD 21240; (301) 621-0100 ext 241. Refer to MFS-29379/TN.

NTIS Prices: Not available NTIS

Country of Publication: United States

This citation summarizes a one-page announcement of technology available for utilization. A slip-on eyepiece for a commercial ultraviolet-light borescope reduces both the amount of short-wave ultraviolet light that reaches the viewer's eye and the apparent intensity of unwanted reflections of white light from surfaces undergoing inspection. The eyepiece fits on the stock eyepiece of the borescope, which illuminates the surface to be inspected with intense ultraviolet light. The surface, which has been treated with a fluorescent dye, emits bright-green visible light wherever the dye has penetrated--in cracks and voids, for instance. The light course of a borescope generates substantial amounts of undesired short-wave ultraviolet (wavelengths less than 2,000 A) and visible light along with the desired long-wave ultraviolet light, 2,000 to 3,650 A in wavelength, that stimulates fluorescence. The visible portion of the extra light reduces contrast so that the fluorescence is more difficult to see, and the short-wavelength ultraviolet portion is harmful to the viewer's eye. It is not practical to filter out the unwanted components at the source because the intensity of the desired long-wavelength ultraviolet would be reduced. The new eyepiece contains a deep-yellow Wratten 15(G) filter, which attenuates the unwanted light strongly but passes the yellow-green fluorescence so that defects can be seen clearly. Other filter colors were tried, including oranges, reds, and greens. Although they attenuated the short-wave ultraviolet somewhat, they adversely affected the appearance of the fluorescent light. The slip-on eyepiece is made of standard parts. It includes a rubber eyecup that shields the viewer's eye from the room light.

24/7/11 (Item 11 from file: 8)

DIALOG(R)File 8: Ei Compendex(R)

(c) 2004 Elsevier Eng. Info. Inc. All rts. reserv.

04356523 E.I. No: EIP96033066695

Title: Recovery of SHGCs from a single intensity view

Author: Gross, Ari D.; Boulton, Terrence E.

Corporate Source: City Univ of New York, Flushing, NY, USA

Source: IEEE Transactions on Pattern Analysis and Machine Intelligence v 18 n 2 Feb 1996. p 161-180

Publication Year: 1996

CODEN: ITPIDJ ISSN: 0162-8828

Language: English

Document Type: JA; (Journal Article) Treatment: T; (Theoretical)

Journal Announcement: 9605W1

Abstract: Generalized Cylinders are a flexible, loosely-defined class of parametric shapes capable of modeling many real-world objects. Straight

Homogeneous Generalized Cylinders are an important subclass of Generalized Cylinders, whose cross-sections are scaled versions of a reference curve. Although there has been considerable research into recovering the shape of SHGCs from their contour, this work has almost exclusively involved methods that couple contour and heuristic constraints. A rigorous approach to the problem of recovering solid parametric shape from a single intensity view should involve at least two stages: 1) deriving the contour constraints, and 2) determining if additional image constraints, e.g., intensity, can be used to uniquely determine the 3D object shape. In this paper, the authors follow the approach just described. This methodology is also important for the recovery of object classes like tubes, where contour and heuristic constraints are shown to be insufficient for shape recovery. First, we prove that SHGC contours generated under orthography have exactly two degrees of freedom. Next, we show that the remaining free parameters can be resolved using reflectance-based constraints, without knowledge of the number of light sources, their positions, intensities, the amount of **ambient** light, or the **surface** albedo. Finally, the reflectance-based recovery algorithm is demonstrated on both synthetic and real SHGC images. (Author abstract) 39 Refs.

24/7/12 (Item 12 from file: 99)

DIALOG(R)File 99:Wilson Appl. Sci & Tech Abs

(c) 2004 The HW Wilson Co. All rts. reserv.

1302921 H.W. WILSON RECORD NUMBER: BAST96025155

Correction to "Recovery of SHGCs from a single intensity view"

AUGMENTED TITLE: to the February 1996 article

IEEE Transactions on Pattern Analysis and Machine Intelligence v. 18 (Apr. '96) p. 471-9

DOCUMENT TYPE: Feature Article ISSN: 0162-8828

ABSTRACT: Generalized Cylinders are a flexible, loosely-defined class of parametric shapes capable of modeling many real-world objects. Straight Homogeneous Generalized Cylinders are an important subclass of Generalized Cylinders, whose cross-sections are scaled versions of a reference curve. Although there has been considerable research into recovering the shape of SHGCs from their contour, this work has almost exclusively involved methods that couple contour and heuristic constraints. A rigorous approach to the problem of recovering solid parametric shape from a single intensity view should involve at least two stages: 1) deriving the contour constraints, and 2) determining if additional image constraints, e.g., intensity, can be used to uniquely determine the 3D object shape. In this paper, the authors follow the approach just described. This methodology is also important for the recovery of object classes like tubes, where contour and heuristic constraints are shown to be insufficient for shape recovery. First, we prove that SHGC contours generated under orthography have exactly two degrees of freedom. Next, we show that the remaining free parameters can be resolved using reflectance-based constraints, without knowledge of the number of light sources, their positions, intensities, the amount of **ambient** light, or the **surface** albedo. Finally, the reflectance-based recovery algorithm is demonstrated on both synthetic and real SHGC images. Copyright 1996, IEEE.

25/7/3 (Item 1 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)

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0014465084 BIOSIS NO.: 200300433803

Polarized lens with oxide additive

AUTHOR: Larson Charles P (Reprint)
AUTHOR ADDRESS: 11132 Begonia Ave., Fountain Valley, CA, 92708, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office
Patents 1273 (2): Aug. 12, 2003 2003
MEDIUM: e-file
ISSN: 0098-1133 (ISSN print)
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English
ABSTRACT: A lens for reducing **glare** and improving color discrimination includes a lens wafer containing a rare earth oxide such as neodymium that provides progressively higher transmittance at 540 nm than at 500 nm and at 450 nm, and average transmittance at 540 and 610 nm that is greater than the transmittance at 580 nm. A ultra-violet absorber, a polarized filter and anti-reflective layer may be included to reduce UV light, **glare** and improve contrast and vision.

25/7/4 (Item 1 from file: 18)
DIALOG(R) File 18:Gale Group F&S Index(R)
(c) 2004 The Gale Group. All rts. reserv.
03082427 Supplier Number: 48489439

Polaroid reveals a shady sight on I-83.

Ariano, Alexis
Daily Record (Baltimore, MD), pA1
May 18, 1998

ABSTRACT:
Polaroid Corp.'s billboard along I-83 in Baltimore, MD, is part of its campaign to reenter the sunglass market after a 23-year absence. The ad, which features a sunbather with an obscure bustline, is the firm's way of creating some interest in people to interact with its new line of anti-**glare** glasses. It is also Polaroid's way of showing what consumers could be deprived of if they do not use the firm's new line of anti- **glare** glasses. Polaroid is rolling-out a new line of sunglasses that use patented **polarized lens** technology and block 99.9% of reflected **glare** and 100% ultraviolet rays.

25/7/5 (Item 2 from file: 18)
DIALOG(R) File 18:Gale Group F&S Index(R)
(c) 2004 The Gale Group. All rts. reserv.
01932590 Supplier Number: 43284114

Computercizing could become the newest fitness trend

San Diego Business Journal, p15
Sept 7, 1992

ABSTRACT:
WorkAble Solutions (San Diego, CA) offers software that prompts computer users to take breaks from work to exercise. The User Friendly Exercises program emits a tone periodically to remind the user to take a break, and shows exercises on the screen. Exercises are designed to prevent lower-back problems, eyestrain and retrograde degeneration in wrists and hands. The program was designed by Marla Rishel, and is also sold through Krames Communications (San Francisco, CA) and ErgoSource (Costa Mesa, CA). Separately, Advance Computer Ergonomics is moving to commercial production of a durapreme wrist pad, and offers a **polarized glass glare** screen.
COMMENTS: WorkAble Solutions: Mkts software that prompts computer users to take breaks from work to exercise
Advance Computer Ergonomics: Begins mktg durapreme wrist pad for computer user ergonomics

Serial 10/602110

July 20, 2004

File 16:Gale Group PROMT(R) 1990-2004/Jul 19
 File 160:Gale Group PROMT(R) 1972-1989
 File 47:Gale Group Magazine DB(TM) 1959-2004/Jul 19
 File 148:Gale Group Trade & Industry DB 1976-2004/Jul 19
 File 621:Gale Group New Prod.Annou.(R) 1985-2004/Jul 19
 File 570:Gale Group MARS(R) 1984-2004/Jul 19
 File 649:Gale Group Newswire ASAP(TM) 2004/Jul 15
 File 636:Gale Group Newsletter DB(TM) 1987-2004/Jul 19
 File 9:Business & Industry(R) Jul/1994-2004/Jul 16
 File 112:UBM Industry News 1998-2004/Jan 27
 File 993:NewsRoom 2002
 File 994:NewsRoom 2001
 File 995:NewsRoom 2000
 File 149:TGG Health&Wellness DB(SM) 1976-2004/Jul W2
 File 88:Gale Group Business A.R.T.S. 1976-2004/Jul 16
 File 98:General Sci Abs/Full-Text 1984-2004/Jun

Set	Items	Description
S1	1595	POLARI?ED() (LENS?? OR GLASS?? OR EYEWEAR OR SUNGLASS?? OR - EYEGLOSS??)
S2	8293311	VISUAL() INDICIA OR IMAGE OR IMAGES OR PHOTO OR PHOTOS OR P-HOTOGRAPH? ? OR SNAPSHOT? ? OR PICTURE OR PICTURES
S3	1779409	FILM
S4	1454785	COAT??? OR LAYER??
S5	2230	SINGLE() (PLANE OR AXIS) (2W) LIGHT OR LIGHT (2W) SURFACE
S6	4078753	REFLECT?
S7	7502	(AMBIENT OR UNPOLARI?ED OR RANDOM??()) POLARI?ED() LIGHT
S8	2085765	TRANSMIT? OR TRANSMISSION
S9	54555	GLARE
S10	32	S1(S) S2(S) S3
S11	35	S5(S) S7
S12	0	S10(S) S11
S13	2	S10(S) S9
S14	1	RD (unique items)
S15	0	S1(S) S11
S16	20	RD S10 (unique items)
S17	0	S16/2004
S18	20	Sort S16/ALL/PD,A
S19	0	S1 AND S11
S20	379	S1(S) S9
S21	3203222	DEMONSTRAT?
S22	3	S20(S) S21
S23	3	S22 NOT S10
S24	1	S1(S) S6(S) S21
S25	0	S24 NOT (S10 OR S22)

14/3,K/1 (Item 1 from file: 148)

DIALOG(R) File 148:Gale Group Trade & Industry DB

(c)2004 The Gale Group. All rts. reserv.

10002888 SUPPLIER NUMBER: 20210563 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Polaroid Previews 25 New Products And Capabilities For Investors

PR Newswire, p205NETH031

Feb 5, 1998

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 1159 LINE COUNT: 00103

... x)oor line of fashion sunglasses featuring polarized lenses; the
 Digital Microscope Camera; Polaroid PhotoMAX Image Maker Software; and

the **glare** -reducing KE polarizer...

18/8/1 (Item 1 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.
00690356
The movie industry is reviving 3-D as producers and directors believe that new equipment such as electronically synchronized projectors and single camera film processes can eliminate problems that plagued earlier attempts, and the public seems ready.
November, 1981
PRODUCT: *Motion Picture Equip (3861300)
EVENT: *Product Design & Development (33)
COUNTRY: *United States (1USA)

18/8/2 (Item 2 from file: 47)
DIALOG(R)File 47:(c) 2004 The Gale group. All rts. reserv.
02582778 SUPPLIER NUMBER: 03456526 (USE FORMAT 7 OR 9 FOR FULL TEXT)
The microscopic world in living detail.
Oct, 1984
WORD COUNT: 1257 LINE COUNT: 00098
SPECIAL FEATURES: illustration; photograph
DESCRIPTORS: Massachusetts Institute of Technology--Research; Cells--Observations; Microscopy, Medical--Innovations; Imaging systems in medicine--Innovations
NAMED PERSONS: Nelson, Alan C.--Research
FILE SEGMENT: MI File 47

18/8/4 (Item 4 from file: 9)
DIALOG(R)File 9:(c) 2004 The Gale Group. All rts. reserv.
1790752 Supplier Number: 01790752 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Eric Idle's 3-D Pirates Stranded At Sea World
March 17, 1997
WORD COUNT: 562
COMPANY NAMES: BUSCH ENTERTAINMENT CORP (ANHEUSER-BUSCH COMPANIES INC)
INDUSTRY NAMES: Entertainment
PRODUCT NAMES: Motion picture and video tape production (781200);
Amusement parks (799600)
CONCEPT TERMS: All product and service information; Product development
GEOGRAPHIC NAMES: North America (NOAX); United States (USA)

18/8/5 (Item 5 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
10002888 SUPPLIER NUMBER: 20210563 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Polaroid Previews 25 New Products And Capabilities For Investors
Feb 5, 1998
WORD COUNT: 1159 LINE COUNT: 00103
COMPANY NAMES: Polaroid Corp.--Product introduction
INDUSTRY CODES/NAMES: BUS Business, General; BUSN Any type of business
DESCRIPTORS: Camera industry--Product introduction
PRODUCT/INDUSTRY NAMES: 3861115 (Instant Film Cameras)
SIC CODES: 3861 Photographic equipment and supplies
TICKER SYMBOLS: PRD
FILE SEGMENT: NW File 649

18/8/6 (Item 6 from file: 16)

ASRC Searcher: Jeanne Horrigan
Serial 10/602110
July 20, 2004

17

DIALOG(R)File 16:(c) 2004 The Gale Group. All rts. reserv.
06363453 Supplier Number: 54715937 (USE FORMAT 7 FOR FULLTEXT)
**Cinemark USA To Build Its First Washington-Area Stadium Seating Theatre in
McLean, Va.**
May 24, 1999
Word Count: 553
PUBLISHER NAME: Business Wire
COMPANY NAMES: *Cinemark USA Inc.; DTS
GEOGRAPHIC NAMES: *1U5VA (Virginia)
PRODUCT NAMES: *7830000 (Motion Picture Theaters)
INDUSTRY NAMES: BUS (Business, General); BUSN (Any type of business)
SIC CODES: 7830 (Motion Picture Theaters)
NAICS CODES: 51213 (Motion Picture and Video Exhibition)
SPECIAL FEATURES: INDUSTRY; COMPANY

18/8/7 (Item 7 from file: 16)
DIALOG(R)File 16:(c) 2004 The Gale Group. All rts. reserv.
07016478 Supplier Number: 59323228
**IMAX: movies with a third dimension that makes you duck. (Technology
Information) (Statistical Data Included)**
Feb 10, 2000
PUBLISHER NAME: New York Times Company Magazine Group, Inc.
COMPANY NAMES: *Imax Systems Corp.
EVENT NAMES: *331 (Product development)
GEOGRAPHIC NAMES: *1CANA (Canada)
PRODUCT NAMES: *3861381 (Motion Picture Cameras, 35 & 70mm)
NAICS CODES: 333315 (Photographic and Photocopying Equipment
Manufacturing)
SPECIAL FEATURES: COMPANY

18/8/8 (Item 8 from file: 995)
DIALOG(R)File 995:(c) 2004 The Dialog Corporation. All rts. reserv.
0050001125 15140134
3-D EXPLODES ON WEB IMAGING BRINGS DOWN THE (SEAHAWKS') HOUSE ON INTERNET
ALBANY TIMES UNION (NY)
Wednesday, April 5, 2000
WORD COUNT: 850
COMPANY NAMES: MICROSOFT CORP
EVENT NAMES: PATENTS AND TRADEMARKS; TECHNOLOGY DEVELOPMENT
GEOGRAPHIC NAMES: AMERICAS; NORTH AMERICA; USA
INDUSTRY NAMES: CINEMA; COMMUNICATIONS TECHNOLOGIES; ENTERTAINMENT;
INTERNET; LEISURE
JOURNAL REGION: NEW YORK; USA
JOURNAL SUBJECT: General News

18/8/9 (Item 9 from file: 148)
DIALOG(R)File 148:(c) 2004 The Gale Group. All rts. reserv.
12937232 SUPPLIER NUMBER: 68534450 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Display enhancements accept no compromises (1). (Technology Information)
Dec 7, 2000
WORD COUNT: 3707 LINE COUNT: 00293
INDUSTRY CODES/NAMES: BUSN Any type of business; ELEC Electronics
DESCRIPTORS: CAD-CAM systems industry--Products; Computer software
industry--Products; Three-dimensional graphics--Design and construction;
Video monitors--Design and construction
FILE SEGMENT: TI File 148

Serial 10/602110

July 20, 2004

18/8/10 (Item 10 from file: 16)

DIALOG(R)File 16:(c) 2004 The Gale Group. All rts. reserv.

10437071 Supplier Number: 99492351 (USE FORMAT 7 FOR FULLTEXT)

3-D vision speaks volumes: you know it's 3-D when you can walk around it.**(Technology Hands on).**

April 1, 2002

Word Count: 1058

PUBLISHER NAME: Computerworld, Inc.

COMPANY NAMES: *Actuality Systems Inc._Products

DESCRIPTORS: *Genomics--Research; Three-dimensional display systems--
Products; Volumetric apparatus--ProductsEVENT NAMES: *330 (Product information); 331 (Product development); 310
(Science & research)

GEOGRAPHIC NAMES: *1USA (United States)

PRODUCT NAMES: *2834199 (Metabolic Agents NEC); 2834000

(Pharmaceutical Preparations); 2834190 (Metabolic Agents); 2830000

(Drugs & Pharmaceuticals)

INDUSTRY NAMES: BUSN (Any type of business); CMPT (Computers and Office
Automation)

SIC CODES: 2830 (Drugs); 2834 (Pharmaceutical preparations)

NAICS CODES: 325412 (Pharmaceutical Preparation Manufacturing); 3254 (Pharmaceutical and Medicine Manufacturing)

18/8/11 (Item 11 from file: 993)

DIALOG(R)File 993:(c) 2004 The Dialog Corporation. All rts. reserv.

0436022270 15T80PRX

**CLOSE ENOUGH TO TOUCH IN SPACE OR UNDER SEA, 3-D IMAX RECAPTURES THE
ORIGINAL THRILL OF CINEMA**

Boston Globe (MA)

Sunday, April 21, 2002

WORD COUNT: 1,701

EVENT NAMES: CONTRACTS AND ORDERS; TECHNOLOGY DEVELOPMENT

INDUSTRY NAMES: AEROSPACE; CINEMA; ENTERTAINMENT; LEISURE; SPACECRAFT AND
SATELLITES; THEATRE

JOURNAL REGION: MASSACHUSETTS; USA

JOURNAL SUBJECT: General News

18/8/12 (Item 12 from file: 993)

DIALOG(R)File 993:(c) 2004 The Dialog Corporation. All rts. reserv.

0550004766 160E04NX

For release weekend of Nov. 28-Dec. 1 and thereafter

AP Alert Entertainment

Thursday, November 28, 2002

WORD COUNT: 1,274

COMPANY NAMES: TURNER BROADCASTING SYSTEM INC

EVENT NAMES: TECHNOLOGY DEVELOPMENT

INDUSTRY NAMES: CINEMA; ENTERTAINMENT; LEISURE

JOURNAL REGION: New York; USA

JOURNAL SUBJECT: Media and Public Affairs

18/8/14 (Item 14 from file: 993)

DIALOG(R)File 993:(c) 2004 The Dialog Corporation. All rts. reserv.

0550503241 160F0358

3-D movies no longer craze of 50 years ago, but still make viewers

AP Alert Entertainment

Friday, November 29, 2002

WORD COUNT: 1,268

COMPANY NAMES: TURNER BROADCASTING SYSTEM INC

EVENT NAMES: TECHNOLOGY DEVELOPMENT

INDUSTRY NAMES: CINEMA; ENTERTAINMENT; LEISURE

JOURNAL REGION: New York; USA

JOURNAL SUBJECT: Media and Public Affairs

Building and Construction; Business; Chemicals; Computers; Consumer Goods
; Economics; Education; Employment and HR; Energy; Engineering;
Environment; Food and Hospitality; General News; Government and Politics;
Legal and Justice; Library and Information Sciences; Manufacturing; Media
and Public Affairs; Medicine and Health; Mining and Natural Resources;
Natural Sciences; Pharmaceuticals; Real Estate; Social Sciences; Telecomm
; Trade; Transportation; Travel and Leisure

18/8/16 (Item 16 from file: 993)

DIALOG(R)File 993:(c) 2004 The Dialog Corporation. All rts. reserv.
0552534671 160K11VG

A brief history of 3-D images

Malay Mail

Monday, December 2, 2002

WORD COUNT: 219

INDUSTRY NAMES: CINEMA; ENTERTAINMENT; LEISURE

JOURNAL REGION: Malaysia

JOURNAL SUBJECT: General News

18/8/17 (Item 17 from file: 993)

DIALOG(R)File 993:(c) 2004 The Dialog Corporation. All rts. reserv.
0554029955 160N0X82

SCREEN PLAY 50 YEARS LATER, 3-D MOVIES ARE STILL A THRILL

Augusta Chronicle (GA)

Thursday, December 5, 2002

WORD COUNT: 1,180

COMPANY NAMES: IMAX; MGM; TURNER ENTERTAINMENT; 20TH CENTURY FOX; TURNER
BROADCASTING SYSTEM INC

EVENT NAMES: TECHNOLOGY DEVELOPMENT

INDUSTRY NAMES: CINEMA; ENTERTAINMENT; LEISURE; THEATRE

JOURNAL REGION: Georgia; USA

JOURNAL SUBJECT: General News

18/3,K/3 (Item 3 from file: 47)

DIALOG(R)File 47:Gale Group Magazine DB(TM)

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03319052 SUPPLIER NUMBER: 08244365 (USE FORMAT 7 OR 9 FOR FULL TEXT)

The use of stereophotography for investigating peritoneal topgraphy.

Gall, Cameron A.

PSA Journal, v55, n12, p19(4)

Dec, 1989

CODEN: PHABB ISSN: 0030-8277 LANGUAGE: ENGLISH RECORD TYPE:
FULLTEXT

WORD COUNT: 1352 LINE COUNT: 00108

... microscope lenses being fixed.

Stereo pairs from an electron microscope are obtained by taking two
pictures of the same specimen at slightly different angles. This is
achieved by tilting the specimen...

...degrees dependent on the magnification chosen. A Polaroid camera is used

to take the initial **pictures** which enables the prints to be checked almost immediately for contrast, density and focus. The prints are then recorded on 35mm slide **film**. These **film** chips are mounted into a special mount for stereo projection. The two views are projected with opposed polarized light beams, upon a lenticular screen. The audience wears similarly **polarized glasses**. These glasses, standard equipment for anyone interested in stereophotography, limit what the eyes see. One sees the second view being projected. The composite **image** is processed by the brain and depth is perceived...

23/7/1 (Item 1 from file: 16)

DIALOG(R) File 16:Gale Group PROMT(R)

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04564712 Supplier Number: 46709437 (THIS IS THE FULLTEXT)

Polarized lens demonstrator available

Ophthalmology Times, p47

Sept 15, 1996

TEXT:

In-office displays that graphically show consumers the difference between polarized and nonpolarized lenses are available from C&E Distributing Southeast Inc. Patients can test the company's Polarex line of polarized lenses versus a nonpolarized lenses using a newly developed Polarex Lens Demonstrator.

Each lens **demonstrator** houses a photographic depiction of a high glare scene. The attached Polarex **polarized lenses** and nonpolarized lorgnettes afford patients the chance to view the scene with and without Polarex.

Contact: C&E Distributing Southeast, Norcross, GA; (800) 451-0814.

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23/3,AB,K/2 (Item 1 from file: 994)

DIALOG(R) File 994:NewsRoom 2001

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0378037670 15PN14T5

Are there too many O.D.s?

Bennett, Irving

Optometric Management, v36, n12, p24

Monday, December 31, 2001

JOURNAL CODE: ANMF LANGUAGE: ENGLISH RECORD TYPE: Fulltext

DOCUMENT TYPE: Trade Journal ISSN: 0030-4085

WORD COUNT: 3,430

...Post displays in exam rooms and the dispensary that demonstrate glare and reflections and how **polarized lenses** and lenses with anti-reflection (AR) coating can help reduce these problems.

> Wear AR-coated...

23/3,AB,K/3 (Item 2 from file: 994)

DIALOG(R) File 994:NewsRoom 2001

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0330539783 15LP16V6

Discovering the key...to effectively educating patients

Cohen, Stephen

Optometric Management, v36, n9, p59

Sunday, September 30, 2001

JOURNAL CODE: ANMF LANGUAGE: ENGLISH RECORD TYPE: Fulltext

DOCUMENT TYPE: Trade Journal ISSN: 0030-4085

WORD COUNT: 2,431

...if you have a glare demonstration kit, compare the patient's current sunglass lenses to **polarized lenses** .

* Addressing the "fee" issue. No optometrist I know relishes the thought of justifying fees to...

File 88:Gale Group Business A.R.T.S. 1976-2004/Jul 16
Set Items Description
S1 1 POLARI?ED () SUNGLASS?? (3N) DEMONSTRAT?

1/9/1

DIALOG(R) File 88:Gale Group Business A.R.T.S.

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03816946 SUPPLIER NUMBER: 18026584

Laptop art. (demonstrating polarization in physics) (Cover Story)

Mattila, Jukka O.

The Physics Teacher, v34, n2, p78(2)

Feb, 1996

DOCUMENT TYPE: Cover Story ISSN: 0031-921X LANGUAGE: English

RECORD TYPE: Abstract

ABSTRACT: An interesting demonstration of polarization when optically active materials are placed between two polarizing filters can be performed using a laptop and **polarized sunglasses**. This **demonstration** produces beautiful color effects for materials such as acrylic plastic and cellophane which are revolved in front of the liquid-crystal display. This demonstration can also be used as an artistic physics show if numerous laptops are displayed behind large polarizing sheets with tiny motors rotating the objects.

DESCRIPTORS: Physics--Study and teaching; Polarization (Light)--Study and teaching; Teaching demonstrations--Equipment and supplies

SPECIAL FEATURES: illustration; photograph; chart

File 9:Business & Industry(R) Jul/1994-2004/Jul 19
File 16:Gale Group PROMT(R) 1990-2004/Jul 20
File 47:Gale Group Magazine DB(TM) 1959-2004/Jul 20
File 141:Readers Guide 1983-2004/Jun
File 148:Gale Group Trade & Industry DB 1976-2004/Jul 20
File 149:TGG Health&Wellness DB(SM) 1976-2004/Jul W2
File 275:Gale Group Computer DB(TM) 1983-2004/Jul 20
File 484:Periodical Abs Plustext 1986-2004/Jun W4
File 621:Gale Group New Prod.Annou.(R) 1985-2004/Jul 20
File 636:Gale Group Newsletter DB(TM) 1987-2004/Jul 20
File 610:Business Wire 1999-2004/Jul 20
File 649:Gale Group Newswire ASAP(TM) 2004/Jul 16
File 609:Bridge World Markets 2000-2001/Oct 01

Set	Items	Description
S1	31	POLARI?ED(5N) (DEMONSTRATION OR POINT(1W) PURCHASE)
S2	19	RD (unique items)
S3	19	Sort S2/ALL/PD,A

3/3,AB,K/2 (Item 2 from file: 484)

DIALOG(R)File 484:Periodical Abs Plustext
(c) 2004 ProQuest. All rts. reserv.
01389088

A surprising optical property of Plexiglas rods--An unusual approach to birefringence

Schneider, Werner B

American Journal of Physics (IAJP), v59 n12, p1086-1087

Dec 1991

ISSN: 0002-9505 JOURNAL CODE: IAJP

DOCUMENT TYPE: Feature

LANGUAGE: English

RECORD TYPE: Abstract

LENGTH: Medium (10-30 col inches)

ABSTRACT: A technique to demonstrate birefringence using ordinary Plexiglas rods is described. The technique allows **demonstration** of elliptically **polarized** light in a direct and impressive way or the easy construction of quarter-wave or half-wave retardation plates with exceptional performance.

3/3,AB,K/3 (Item 3 from file: 484)

DIALOG(R)File 484:Periodical Abs Plustext

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01916333 (USE FORMAT 7 OR 9 FOR FULLTEXT)

Polarization of scattered light

Munchausen, Linda L

Journal of Chemical Education (ICHE), v71 n2, p155

Feb 1994

ISSN: 0021-9584 JOURNAL CODE: ICHE

DOCUMENT TYPE: Feature

LANGUAGE: English

RECORD TYPE: Fulltext; Abstract

WORD COUNT: 576 LENGTH: Medium (10-30 col inches)

ABSTRACT: A laboratory experiment demonstrating the polarization of scattered blue light that is involved in the Tyndall Effect is described.

TEXT:

... 3). An exciting aspect of the demonstration is that the scattered blue light is plane **polarized**. **Demonstration** of the polarization effect can be used both to emphasize the relationship between chemistry, physics...

3/3,AB,K/10 (Item 10 from file: 9)
DIALOG(R)File 9:Business & Industry(R)
(c) 2004 The Gale Group. All rts. reserv.
2289159 Supplier Number: 02289159
Category is driven by style
(The sunglasses category is driven by style, and a number of firms like
Today's Optical and Sun Designe have new products available)
Chain Drug Review, v 20, n 18, p 94
October 26, 1998
DOCUMENT TYPE: Journal; Industry Overview ISSN: 0164-9914 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 1280

ABSTRACT:

The **sunglasses** category is driven by style, and a number of firms like
Today's Optical and Sun Designe Ltd have new products available. Sun Ban
Fashions Inc's Today's Optical division introduced glasses featuring
lightly-tinted lenses, which is seen as trendy. Trends that are expected
by the division VP Michael Nadel include beveled lenses, rimless frames,
and colored gunmetal frames. Sun Designe VP of sales Jack Taber sees light
tints and square frames as the most popular frames. The article discusses
the trends in additional detail.

TEXT:

...today's most popular shapes, says a spokeswoman. Couture will be
supported with eye catching **point -of- purchase** material, she adds.
The **Polarized** line comprises polarized glasses that will retail for under
\$35. The collection was inspired by...

3/3,AB,K/12 (Item 12 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext
(c) 2004 ProQuest. All rts. reserv.
04458037 (USE FORMAT 7 OR 9 FOR FULLTEXT)
**A classroom demonstration of Rayleigh light scattering in optically active
and inactive systems**
Pecina, Monica Avalos; Smith, Charles A
Journal of Chemical Education (ICHE), v76 n9, p1230-1233, p.4
Sep 1999
ISSN: 0021-9584 JOURNAL CODE: ICHE
DOCUMENT TYPE: Feature
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2830

ABSTRACT: Optical activity is a property of molecules that causes the
rotation of the electric field vector of light as it travels through an
optically active medium. Pecina and Smith describe a classroom
demonstration that allows students to observe and manipulate the optical
path of polarized light through optically inactive and optically active
solutions.

TEXT:

... students that the polarizer is therefore not needed, since the
diode laser light is highly **polarized**.

In Part 1 of the **demonstration**, students view and walk around the
setup containing the optically inactive compound. Relate to them...

3/3,AB,K/18 (Item 18 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2004 The Gale Group. All rts. reserv.
10056480 Supplier Number: 82779941

What a doc wants from the lab, but never thought to ask: Cut down on use of the R words--remakes and redos--by following these steps. (Ophthalmic Dispensing).

Lamperelli, Karlen

Review of Optometry, v139, n1, p31(2)

Jan 15, 2002

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Refereed; Professional

Word Count: 1295

... is still on-site, especially on any non-standard work.

* Get the perks. Labs offer **point -of- purchase** materials such as **polarized** lens demonstrators and tint displays, often at a reasonable cost that can be reimbursed on...

File 9:Business & Industry(R) Jul/1994-2004/Jul 19
File 16:Gale Group PROMT(R) 1990-2004/Jul 20
File 18:Gale Group F&S Index(R) 1988-2004/Jul 15
File 88:Gale Group Business A.R.T.S. 1976-2004/Jul 19
File 148:Gale Group Trade & Industry DB 1976-2004/Jul 20
File 149:TGG Health&Wellness DB(SM) 1976-2004/Jul W2
File 537:Harris Business Profiler 2004/Feb
File 570:Gale Group MARS(R) 1984-2004/Jul 20
File 994:NewsRoom 2001
Set Items Description
S1 13 POLARI?ED(10N) POINT(1W) PURCHASE
S2 5 RD (unique items)

2/7/3 (Item 1 from file: 18)

DIALOG(R)File 18:Gale Group F&S Index(R)
(c) 2004 The Gale Group. All rts. reserv.
04678306 Supplier Number: 75752270

Heritage Sign and Display.

Creative, p133(1)
April-May, 2001

ABSTRACT:

Heritage Sign and Display is a manufacturer of custom **point -of- purchase** display units, including mirrors, lighted signs, **polarized** motion signs, electroluminescent displays, clocks, Neo-Neon signs, product glorifiers, Shape-Lites and custom-molded foam items. The company maintains a state-of-the-art facility for mirror production, woodworking, vacuum forming, CNC cutting and polyurethane foam fabrication. Its clients include Anheuser-Busch, Bacardi, Nokia, Ovation Guitars and Rockport.

2/7/4 (Item 1 from file: 88)

DIALOG(R)File 88:Gale Group Business A.R.T.S.
(c) 2004 The Gale Group. All rts. reserv.
05914279 SUPPLIER NUMBER: 55361056

Nautica's Blue and Gold.

Review of Optometry, 136, 7, 138
July 15, 1999

TEXT:

To create attractive dispensary displays, Marchon introduces **point -of- purchase** materials to complement its national advertising campaign for the Nautica **polarized** sun collection. Large and small counter cards, posters and a double-sided banner are available. Blue, gold and white logo blocks make for an innovative frame display option, and coordinating logo banners can create a Nautica "area" in your dispensary. An eight-piece riser display, logoed counter mirror and choice of Lucite or metal nameplates are also available.

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File 98:General Sci Abs/Full-Text 1984-2004/Jun
File 727:Canadian Newspapers 1990-2004/Jul 20
File 20:Dialog Global Reporter 1997-2004/Jul 20
File 484:Periodical Abs Plustext 1986-2004/Jun W4
File 88:Gale Group Business A.R.T.S. 1976-2004/Jul 19
File 16:Gale Group PROMT(R) 1990-2004/Jul 20
File 160:Gale Group PROMT(R) 1972-1989
File 570:Gale Group MARS(R) 1984-2004/Jul 20
Set Items Description
S1 19 POLARI?ED/TI,DE AND DEMONSTRAT?/TI,DE
S2 14 RD (unique items)

2/7/2 (Item 2 from file: 98)

DIALOG(R)File 98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.
03517963 H.W. WILSON RECORD NUMBER: BGS197017963
Inexpensive optics for polarized light demonstrations .
Camp, Paul R
American Journal of Physics (Am J Phys) v. 65 (May '97) p. 449-50
LANGUAGE: English
COUNTRY OF PUBLICATION: United States
ABSTRACT: The author demonstrates the usefulness of cast acrylics and some of the more recent strapping tapes that have been used to make optical devices for overhead projectors at a reasonable cost. The 2 materials on which the author focuses are cast Plexiglas plate and "clear" strapping tape.

2/7/3 (Item 3 from file: 98)

DIALOG(R)File 98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.
01780390 H.W. WILSON RECORD NUMBER: BGS190030390
Polarized light corridor demonstrations .
Davies, G. R
The Physics Teacher (Stony Brook, N.Y.) (Phys Teach) v. 28 (Oct. '90) p. 464-7
LANGUAGE: English
COUNTRY OF PUBLICATION: United States

2/7/4 (Item 4 from file: 98)

DIALOG(R)File 98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.
00501793 H.W. WILSON RECORD NUMBER: BGS185001793
A simple, bright demonstration of the interference of polarized light
Ferguson, J. L
American Journal of Physics (Am J Phys) v. 52 (Dec. '84) p. 1141-2
LANGUAGE: English
COUNTRY OF PUBLICATION: United States

2/7/5 (Item 5 from file: 98)

DIALOG(R)File 98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.
00255575 H.W. WILSON RECORD NUMBER: BGS184005575
Polarized light: three demonstrations .
Goehmann, Ruth
Welty, Scott
The Physics Teacher (Stony Brook, N.Y.) (Phys Teach) v. 22 (May '84) p.

307-9

LANGUAGE: English
COUNTRY OF PUBLICATION: United States

2/7/14 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)
(c) 2004 The Gale Group. All rts. reserv.
04564712 Supplier Number: 46709437 (THIS IS THE FULLTEXT)
Polarized lens demonstrator available
Ophthalmology Times, p47
Sept 15, 1996

TEXT:

In-office displays that graphically show consumers the difference between polarized and nonpolarized lenses are available from C&E Distributing Southeast Inc. Patients can test the company's Polarex line of polarized lenses versus a nonpolarized lenses using a newly developed Polarex Lens Demonstrator.

Each lens demonstrator houses a photographic depiction of a high glare scene. The attached Polarex polarized lenses and nonpolarized lorgnettes afford patients the chance to view the scene with and without Polarex.

Contact: C&E Distributing Southeast, Norcross, GA; (800) 451-0814.

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File 155:MEDLINE(R) 1966-2004/Jul W3
File 5:Biosis Previews(R) 1969-2004/Jul W2
File 73:EMBASE 1974-2004/Jul W2
File 34:SciSearch(R) Cited Ref Sci 1990-2004/Jul W2
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 144:Pascal 1973-2004/Jul W2
File 399:CA SEARCH(R) 1967-2004/UD=14104
File 2:INSPEC 1969-2004/Jul W2
File 6:NTIS 1964-2004/Jul W3
File 8:EI Compendex(R) 1970-2004/Jul W2
File 94:JICST-EPlus 1985-2004/Jun W4
File 62:SPIN(R) 1975-2004/May W4
File 1:ERIC 1966-2004/Jun 09
File 65:Inside Conferences 1993-2004/Jul W3
File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Jun
File 437:Education Abstracts 1983-2004/Jun

Set	Items	Description
S1	192	POLARI?ED/TI,DE AND DEMONSTRAT?/TI,DE
S2	125	RD (unique items)
S3	1713850	GLASS?? OR SUNGLASS?? OR EYEWEAR OR EYEGLASS?? OR LENS?? OR SUNLENS??
S4	3	S2 AND S3
S5	19278	POLARI?ED(S) DEMONSTRAT?
S6	545	S3(S) S5 NOT S4
S7	153	POLARI?ED() S3
S8	8	DEMONSTRAT?(S) S7
S9	8	S8 NOT S4
S10	4	RD (unique items) [not relevant]
S11	393	POINT(1W) PURCHASE
S12	0	S7 AND S11
S13	0	S1 AND S11
S14	0	S5 AND S11

4/7,K/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

01971555 INSPEC Abstract Number: A83005566

Title: Display of interference in highly convergent linearly polarized white light

Author(s): Davies, G.R.

Author Affiliation: Dept. of Phys., Univ. of Natal, Natal, South Africa

Journal: American Journal of Physics vol.50, no.11 p.1051

Publication Date: Nov. 1982 Country of Publication: USA

CODEN: AJPIAS ISSN: 0002-9505

Language: English Document Type: Journal Paper (JP)

Treatment: General, Review (G); Experimental (X)

Abstract: Presents interference effects involving polarised light using the Freier and Eaton (1975) apparatus. This simplified version of the usual arrangement has the advantages that (i) with only one lens component alignment is comparatively quick and (ii) the student can see and understand the optical arrangement at a glance. The results are quite adequate for corridor display. (2 Refs)

Subfile: A

4/7,K/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

01851949 INSPEC Abstract Number: A82048471

Title: Polarised light and the measurement of birefringence

Author(s): Richards, D.A.

Journal: Physics Education vol.16, no.6 p.336-9

Publication Date: Nov. 1981 Country of Publication: UK

CODEN: PHEDA7 ISSN: 0031-9120

Language: English Document Type: Journal Paper (JP)

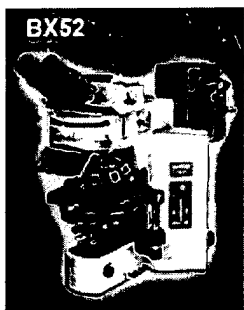
Treatment: Experimental (X)

Abstract: Although 'polaroid' has been available for about 50 years, quantitative experiments on polarised light rarely form part of the practical physics curriculum. It is hoped that the experiments described will redress the omission. A description of polaroid film is given by Jenkins and White (1976) and the film is commercially available sandwiched between plastic film or between **glass** plates. The approximate axis of transmission can be determined by observing through the polaroid film the reflection of light from a **glass** plate at the Brewster angle. On rotating the film, maximum transmission occurs when the transmission axis is parallel to the **glass** surface. Without elaboration it is not easy to transfer the required axis on the film. A simple and accurate alternative method is described. (1 Refs)

Subfile: A

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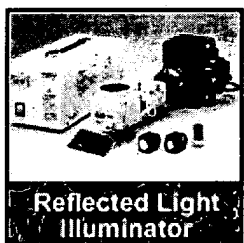
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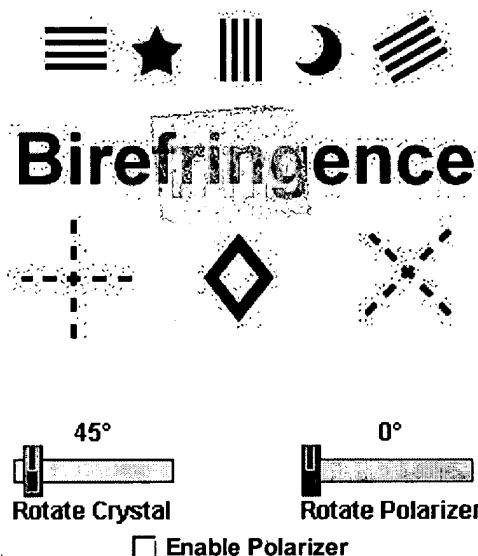
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Birefringence in Calcite Crystals

As light travels through an anisotropic material, the electromagnetic waves become split into two principal vibrations, which are oriented mutually perpendicular to each other and perpendicular to the direction that the waves propagate. The wave whose electric vector vibrates along the major axis of the index ellipse is termed the **slow wave**, because its refractive index for this wave is greater than the refractive index for the other wave. The wave vibrating perpendicular to the slow wave is termed the **fast wave**. This tutorial explores refraction or birefringence in calcite (calcium carbonate), a colorless, transparent, rhombohedral crystalline salt that is the most common such material found naturally.



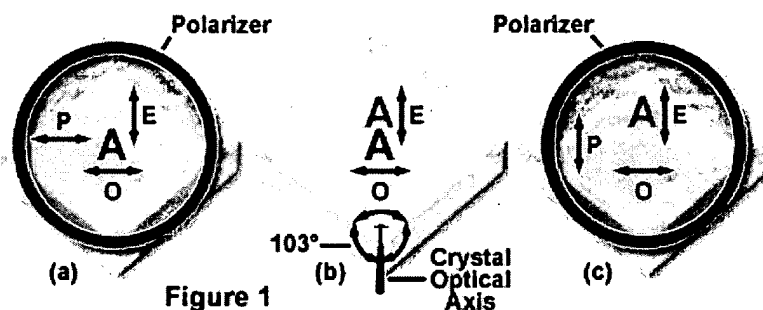
The tutorial initializes with a calcite crystal positioned in the center of the window, and superimposed over letters for the word **Birefringence**. Due to birefringence in the calcite crystal, letters seen through the mineral appear doubled. As the crystal is rotated with the **Rotate Crystal** slider, one of the images remains stationary while the other precesses the first. The mouse cursor can be used to drag and drop the virtual calcite crystal to a location within the tutorial window. When the crystal is placed on the symbols, bar sets dotted lines in the window, an identical effect is observed. The **Enable Polarizer** checkbox adds a virtual polarizer (positioned over the calcite crystal) to the tutorial. After the polarizer is activated, use the **Rotate Polarizer** slider to rotate the polarizer transmission axis through degrees and observe how the text or symbols oscillate in position.

A popular demonstration of birefringence is effected by taking a piece of white paper with a single letter **A** drawn on the paper, and covering the letter with a small crystal of calcite (illustrated in the tutorial and in Figure 1(b)). When the calcite crystal is placed on top of the letter, the image observed through the crystal is doubled. As the crystal is slowly rotated, the letter, one of the images of the letter remains stationary, while the other precesses

the first.

Presented in Figure 1(b) is the double image of the letter **A** observed through a calcite crystal. As the crystal is turned, the **extraordinary (E)** ray image precesses around the **ordinary (O)** ray image. The extraordinary wave vibrates in the plane that includes the **c** axis (the **p** section through the crystal), while the ordinary wave vibrates perpendicular to this axis. The **optical axis** of the crystal is indicated by **c**, which in calcite, represents the axis of **threefold symmetry**. The optical axis makes an equal angle with all three of the crystal faces: the two corners, where all edges lie at 103-degree angles with each other. The **c**-axis is the direction of the semi-ionic bond that links the planar carbonate groups and calcium in the calcite (calcium carbonate) lattice.

Birefringent Calcite Crystal Electric Vector Orientations



The phenomenon of image splitting and precession is explained by the birefringence of calcite. In fact, birefringence in calcite is so strong that not only are there two waves, but even the directions of the two waves become separated. One of the waves, the ordinary ray, travels straight through, with its image remaining stationary when the crystal is turned. This ray is termed the ordinary ray because it behaves (is refracted) in an ordinary fashion. The other wave, the precessing one, refracts in an extraordinary fashion, and is thus termed the extraordinary ray.

A useful tool for examination of polarized light is a pair of **Polaroid** sunglasses, which are inexpensive sheets of polarized lens material. In ordinary light, these sunglasses show apparent anisotropy, even when they are oriented in different directions. However, if one observes the surface of a body of water or the glare on a road or painted surfaces, the polarized reflected light is removed by the polarized lens material. Light that is reflected from the water surface (or other non-conducting material) is plane-polarized, especially at a particular angle of incidence, often termed the **Brewster** angle. Light reflected at the Brewster angle is polarized so the electric vector is vibrating parallel to the surface from which it reflected, not perpendicular to that surface.

This behavior can be explained from a series of equations by Fresnel, but perhaps an easier method is to employ the stick model first proposed by Robert W. Wood. Consider a stick of wood in place of the electric vector. If the wood impacts a water surface at an angle, it slides into the water and is not reflected. However, if the stick lands parallel to the water surface, it can bounce back. Because in nature, horizontal surfaces are almost exclusively encountered, it will be a horizontal vibration that is reflected. To minimize or cut glare, sunglasses are designed to remove the horizontal vibrations and transmit the electric vector that is vibrating vertically. Thus, polarized sunglasses, or the simple polarizing elements derived from them, represent a useful standard for transmission of the electric vector (Figure 1).

The concept of utilizing transparent polarized materials to determine the electric vector directions for the extraordinary and ordinary rays in calcite is presented in Figure 1(a). When the polarizing elements are oriented so that light waves having electric vectors in

vertical direction are transmitted, those waves having similar vectors in the horizontal direction are absorbed. Polarizers superimposed over calcite crystals in Figure 1(a) and (c) are so that the vertical electric vectors are transmitted. The calcite crystal in Figure 1(a) is so that the extraordinary ray is transmitted, but the ordinary ray is absorbed by the polarizer. At an intermediate angle (not illustrated), both images are partially transmitted following the cosine squared law.

Returning to the calcite crystal, the image of the letter **A** in Figure 1(a) has a vertical extraordinary ray vector, and therefore, when viewed through a polarizer with vertical orientation, the bottom image (the letter **A** transmitted by the ordinary ray) will disappear. If either the crystal or polarizer is turned slowly, two images appear until the rotation angle reaches 90 degrees (Figure 1(c)). At this point the letter **A** formed by extraordinary light disappears and the one formed by ordinary light waves reaches its brightest intensity. With birefringence, a light beam is split into two waves traveling at different velocities, perpendicular to each other. Upon closer inspection, the image formed by the extraordinary ray appears farther through the crystal than the ordinary ray image, which indicates that the ordinary ray image has suffered greater refraction. In other words, the refractive index experienced by the extraordinary ray is less than that for the ordinary ray in calcite.

Calcite crystals can be used as very effective polarizers. In fact, Nicol, Glan-Thompson, and other prisms are made of calcite to isolate and transmit only one of the polarized waves. It is unfortunate that the wave transmitted by these otherwise superior polarizing materials is the extraordinary wave. The velocity of the extraordinary wave (or refractive index of the extraordinary ray) varies with direction of propagation. Calcite prisms introduce **astigmatism** unless all the beams travel parallel to each other through the crystal.

Contributing Authors

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Kenneth R. Spring - Scientific Consultant, Lusby, Maryland, 20657.

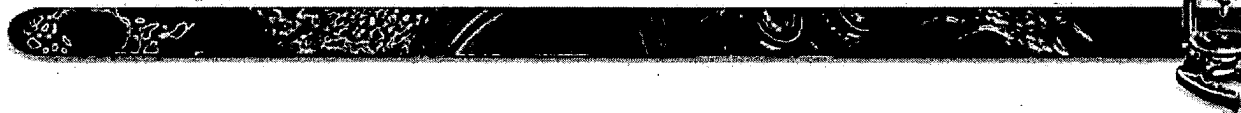
Shinya Inoué - Marine Biological Laboratory, 7 MBL Street, Woods Hole, Massachusetts, 02543.

Matthew J. Parry-Hill, John C. Long, and Michael W. Davidson - National High Magnetic Field Laboratory, Paul Dirac Dr., The Florida State University, Tallahassee, Florida, 32310.

BACK TO OPTICAL BIREFRINGENCE

BACK TO POLARIZED LIGHT MICROSCOPY

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Serial 10/602110

July 20, 2004

File 350:Derwent WPIX 1963-2004/UD,UM &UP=200445

File 347:JAPIO Nov 1976-2004/Mar(Updated 040708)

File 371:French Patents 1961-2002/BOPI 200209

Set	Items	Description
S1	174	POLARI?ED() (LENS?? OR GLASS?? OR EYEWEAR OR SUNGLASS?? OR - EYEGLOSS??)
S2	1655292	VISUAL() INDICIA OR IMAGE OR IMAGES OR PHOTO OR PHOTOS OR P-HOTOGRAPH? ? OR SNAPSHOT? ? OR PICTURE OR PICTURES
S3	1323728	FILM
S4	2593306	COAT??? OR LAYER??
S5	24851	SINGLE() (PLANE OR AXIS) (2W) LIGHT OR LIGHT(2W) SURFACE
S6	470592	REFLECT?
S7	4178	(AMBIENT OR UNPOLARI?ED OR RANDOM??()) POLARI?ED() LIGHT
S8	1891094	TRANSMIT? OR TRANSMISSION
S9	5189	GLARE
S10	16	S1 AND S2 AND S3
S11	5	S1 AND S2 AND S4
S12	93	S5 AND S7
S13	0	S10:S11 AND S12
S14	370402	S2 AND S3:S4
S15	8	S12 AND S14
S16	1	S10:S11 AND S9
S17	18211	DEMONSTRAT?
S18	0	S1 AND S17(10N) (S6 OR S9)
S19	0	S1 AND (S6 OR S9) AND S17
S20	0	S1 AND S17
S21	17	S10:S11 NOT S15:S16
S22	15	POLARI?ED() SUNGLASS??
S23	13	S22 NOT (S15 OR S16 OR S21)

15/26,TI/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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015760002

WPI Acc No: 2003-822204/200377

Laminated optical communication module e.g. for optical fiber, has waveguide to transmit light to wall surface of V- groove covered with metal film

15/26,TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013914508

WPI Acc No: 2001-398721/200143

Production of a polarization conversion element useful for projector by making a composite plate with polarization separation films and reflection films on parts of first or second transmissive plates, and making a transmissive block

15/26,TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012289792

WPI Acc No: 1999-095898/199908

Light but mechanically strong projection television screen consisting of combined Fresnel lens and objective lens formed on transparent resin films - the Fresnel lens having a phase grating formed from shaped UV-curable resin

and the objective lens having lenticular structures formed on its surfaces.

15/26, TI/5 (Item 5 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008830357

WPI Acc No: 1991-334373/199146

Optical polarisation convertor for enhancement of projector efficiency - operates on unpolarised light incident on surface of tripism having corresp. size and cross-sectional shape

15/26, TI/6 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

004247209

WPI Acc No: 1985-074087/198512

Self-developing photographic camera - has housing structure arranged to direct exiting film along exterior of housing, with ambient light blocked from contact with film

15/26, TI/7 (Item 7 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

001997013

WPI Acc No: 1978-10026A/197805

Variable gain semi-specular front projection screen - comprising a beaded cellulose acetate butyrate lacquer film

15/26, TI/8 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO

(c) 2004 JPO & JAPIO. All rts. reserv.

07137771

LIGHT GUIDE PLATE, SURFACE LIGHT SOURCE DEVICE AND REFLECTIVE LIQUID CRYSTAL DISPLAY DEVICE

15/7/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

013090971

WPI Acc No: 2000-262843/200023

Organic light emitting element for light emitting diode, has optical absorption layer provided near transparent substrate's surface to absorb high energy ambient light reflected from light reflecting film

Patent Assignee: MATSUSHITA DENKI SANGYO KK (MATU)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2000068070	A	20000303	JP 98230415	A	1998081	200023 B

Priority Applications (No Type Date): JP 98230415 A 19980817

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 2000068070	A	4	H05B-033/22	

Abstract (Basic): JP 2000068070 A

NOVELTY - Electron and hole-transport-property-organic molecules are provided between the transparent anode and thin film cathode formed on a transparency substrate sequentially. The thin film

cathode consists of alkali metal or alkali earth metal. An optical absorption **layer** is provided near the surface of the transparent substrate to absorb high energy **ambient light** reflected from a light reflecting **film**.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the manufacturing method of organic light emitting element.

USE - For light emitting diode, **light** emitting display, **surface** emission light source.

ADVANTAGE - **Photo** degradation of the light emitting element is prevented by providing optical absorption **layer** which absorbs high energy **ambient light**.

Dwg.0/0

Derwent Class: L03; U12; U14

International Patent Class (Main): H05B-033/22

International Patent Class (Additional): H05B-033/10; H05B-033/14

16/26, TI/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

015998266

WPI Acc No: 2004-156116/200415

Optical part for use as polarized lenses for use in sunglasses or visors, comprises polarizing film covered by polyurethane material comprising photochromic compound.

21/26, TI/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

016304848

WPI Acc No: 2004-462743/200444

Division wavelength-plate filter of liquid crystal panel for notebook computer, has phase difference film laminated on transparent support consisting of specified organic inorganic nano composite substrate

21/26, TI/2 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

013915874

WPI Acc No: 2001-400087/200143

Advertising/information display unit having container with light source and front panel polarized glass window with attenuation film

21/26, TI/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

012277876

WPI Acc No: 1999-083982/199908

Three-dimensional display e.g. cathode ray tube, liquid crystal panel - has liquid crystal shutter in front of display device which is composed of ferroelectric liquid crystal held between two plastic substrates

21/26, TI/4 (Item 4 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

011270000

WPI Acc No: 1997-247903/199723

Cinema projection system providing three-dimensional image without special glasses - includes use of two film images taken from slightly different angles, and projected jointly on to screen surface

21/26, TI/5 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

010267794

WPI Acc No: 1995-169049/199522

Vehicle reflective display system usable under high ambient light conditions - has tinted film over reflective coating on angled target acting as polariser

21/26, TI/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

009967169

WPI Acc No: 1994-234882/199428

Waveguide holographic telltale display for head-up image projection - displays images to vehicle driver by developing static holograms between inner and outer singlets at base and in plane of vehicle windscreen

21/26, TI/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008417377

WPI Acc No: 1990-304378/199040

Method of producing and displaying 3-D motion picture - has images from two master film negatives simultaneously projected onto same screen

21/26, TI/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008044023

WPI Acc No: 1989-309135/198942

Closed-caption movie subtitle system e.g. for hearing impaired - uses material in form of glasses and cross polarised w.r.t. alphanumeric images

21/26, TI/9 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

007007036

WPI Acc No: 1987-007033/198701

Two-dimensional-three-dimensional compatible polarised TV system - includes video camera polarising display device and polarised viewers displaying dimensional colour images

21/26, TI/10 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

004717156

WPI Acc No: 1986-220498/198634

Three-dimensional image production - has left and right images disposed alternately on film projector synchronising speed of projection

21/26, TI/11 (Item 11 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
004055533

WPI Acc No: 1984-201075/198432

Encoded stereoscopic video image displaying method - having light valve addressed by directing collimated read-out light to beam-splitter for producing coherent output

21/26, TI/12 (Item 12 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
004026820

WPI Acc No: 1984-172362/198428

Stereoscopic film projecting appts. - incorporates polyhedral prism to superimpose polarised left and right; eye images on viewing screen

21/26, TI/13 (Item 13 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
003910240

WPI Acc No: 1984-055784/198409

Binocular two-colour stereoscopic viewing appts. - has colour TV receiver with dual dichroic polarising filter over viewing screen observed through orthogonally polarised spectacles

21/26, TI/14 (Item 14 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
003379872

WPI Acc No: 1982-N7907E/198242

Camera for making identity cards - uses polarised light to make single print of subject's portrait and written data

21/26, TI/16 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO
(c) 2004 JPO & JAPIO. All rts. reserv.
00600889
PICKUP DEVICE

21/26, TI/17 (Item 2 from file: 347)

DIALOG(R) File 347:JAPIO
(c) 2004 JPO & JAPIO. All rts. reserv.
00033230
GLASSES FOR THREE-DIMENSIONAL FILM DEVICE

21/7/15 (Item 15 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
002403922

WPI Acc No: 1980-M0397C/198050

Three-dimensional film projection lens system - has stereo images projected through ultra-violet and polarising filters for viewing through binocular polarised glasses

Patent Assignee: CONDON C J (COND-I)

Inventor: CONDON C J

Number of Countries: 001 Number of Patents: 001

Serial 10/602110

July 20, 2004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4235503	A	19801125				198050 B

Priority Applications (No Type Date): US 78903932 A 19780508

Abstract (Basic): US 4235503 A

The film projection lens system defines two adjacent image projection paths passing an illuminated image to a screen. Polarising filters are positioned along both paths to differently polarise each image.

Ultra-violet filters are positioned between the polarising filters and the image. These reduce the ultra-violet rays along the paths impinging on the polarising filters to reduce ultra-violet degradation of the polarising filters.

Derwent Class: P81

International Patent Class (Additional): G02B-027/26

23/26, TI/1 (Item 1 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

013414176

WPI Acc No: 2000-586114/200055

Sunglass lens laminates for e.g. optic and plano lenses comprise first and second lens portions bonded with an adhesive comprising an ultraviolet absorber and a dye

23/26, TI/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

012850028

WPI Acc No: 2000-021860/200002

Display apparatus having quarter-wave plate positioned to eliminate conflicts with polarized sunglasses

23/26, TI/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

012755044

WPI Acc No: 1999-561161/199947

Direct-view, rear-illuminated, twisted-nematic color liquid crystal display used in avionics and other outdoor display applications

23/26, TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

012661596

WPI Acc No: 1999-467701/199939

Sunglass lens laminate comprising first and second lens parts bonded together with an adhesive binder

23/26, TI/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

009131439

WPI Acc No: 1992-258878/199231

Light polarising materials and suspensions - contg. complex obtd. by reacting iodine and iodide unsubstituted or monoalkyl- or dialkyl-substd.

2,5-dicarboxy-pyrazine**23/26, TI/8 (Item 8 from file: 350)**

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008605316

WPI Acc No: 1991-109348/199115

Light polarising complexes and suspensions thereof - by reacting iodine, a hydrohalide acid and an alkyl-substd. 2,5-dicarboxy-pyrazine, useful in light valves

23/26, TI/9 (Item 9 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008155411

WPI Acc No: 1990-042412/199006

Dazzle protection for polarised sunglasses - comprising two adjustable parts with polarised material displaced through ninety deg. in relation to lenses

23/26, TI/10 (Item 10 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

007688749

WPI Acc No: 1988-322681/198845

Polarised sunglasses lens - with polarisation film sandwiched between glass layers, opt. with outer bi-gradient coating

23/26, TI/11 (Item 11 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

007261418

WPI Acc No: 1987-258425/198737

Colour selectable liquid crystal display system - has two liquid crystal cells with polarisers and AC power sources for energisation and deenergisation

23/26, TI/12 (Item 12 from file: 350)

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

007261416

WPI Acc No: 1987-258423/198737

Multicolour liquid crystal display system - has liquid crystal cell with polarisers and power source for energisation and de-energisation

23/26, TI/13 (Item 1 from file: 347)

DIALOG(R) File 347:JAPIO

(c) 2004 JPO & JAPIO. All rts. reserv.

07482303

LIQUID CRYSTAL DISPLAY DEVICE**23/34/5 (Item 5 from file: 350)**

DIALOG(R) File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

012001007 **Image available**

WPI Acc No: 1998-417917/199836

STN type liquid crystal display element for instrument panel of motor vehicle - has polarising front plate in which direction of absorption axis is arranged at predefined inclination with respect to view direction of polarised sun glasses

Patent Assignee: HOSHIDEN KK (HOSD)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 10170907	A	19980626	JP 96331257	A	19961211	199836 B

Priority Applications (No Type Date): JP 96331257 A 19961211

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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JP 10170907	A		4	G02F-001/1335	
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Abstract (Basic): JP 10170907 A

The element has a polarising plate in which the direction of an absorption axis is set up corresponding to the view direction of user wearing the **polarised sun glasses**.

The direction of the absorption axis in the polarising plate is arranged so that the inclination between the absorption axis of the polarising plate and that of the sun glasses is less than 74deg in a clockwise or in an anti-clockwise direction.

USE - For speedometer.

ADVANTAGE - Reduces absorption of light by **polarised sunglasses**. Improves symmetry of visual angle range. Prevents screen becoming over dark.

Dwg.1/3

Derwent Class: P81; U14; X22

International Patent Class (Main): G02F-001/1335

International Patent Class (Additional): G02F-001/133

23/34/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2004 Thomson Derwent. All rts. reserv.

008682900

WPI Acc No: 1991-186919/199126

Motor vehicle polarised display with contrast enhancement - transformers linearly polarised image from source to circularly polarised image on screen viewed through linear polariser

Patent Assignee: HUGHES AIRCRAFT CO (HUGA); HUGHES-JVC TECHNOLOGY CORP (VICO)

Inventor: MCDONALD M

Number of Countries: 006 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 434065	A	19910626	EP 90124968	A	19901220	199126 B
US 5066108	A	19911119	US 89455115	A	19891222	199149
EP 434065	A3	19920205	EP 90124968	A	19901220	199323
IL 96672	A	19951031	IL 96672	A	19901214	199603
EP 434065	B1	19961023	EP 90124968	A	19901220	199647
DE 69028978	E	19961128	DE 628978	A	19901220	199702
			EP 90124968	A	19901220	

Priority Applications (No Type Date): US 89455115 A 19891222

Cited Patents: NoSR.Pub; FR 2212559; WO 8403778

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 434065	B1 E		8	G02F-001/1335	
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Designated States (Regional): DE FR GB SE
DE 69028978 E G02F-001/1335 Based on patent EP 434065
IL 96672 A G02F-001/13
Abstract (Basic): EP 434065 A

The circularly transformed polarised image illumination is imaged by a projection lens (15) and a field lens (17) onto a screen (19).

Illumination from the screen passes to the observer through a linear polariser (21b) providing vertically linearly polarised illumination to prevent blockage by any **polarised sunglasses** worn by the observer. A quarter wave retarder (21a) is associated with the linear polariser (21b), and LCDs may be used as the image source. The retarder (13), for transforming the circularly polarised image, along with the other retarder (21a) cancel the polarisation transformations of each other.

USE - In instrument display panels, or associated with optical combiner such as reflection hologram or windshield surface as head-up display for motor vehicles.

Dwg.1,2/3

Abstract (Equivalent): EP 434065 B

A display for a vehicle having a windshield comprising: a display source (111) emitting imaging illumination; an imaging lens (117) comprising a front element and being responsive to said imaging illumination for producing viewable imaging illumination; and an optical combiner (123) associated with said windshield for reflecting said imaging illumination to produce a virtual image viewable by the driver, characterized in that said display source (111) emits linearly polarized imaging illumination; a first quarter wave retarder (113) is provided between said display source (111) and said imaging lens (117), said first quarter wave retarder (113) having a fast axis for transforming said linearly polarized imaging illumination to circularly polarized imaging illumination; a circular polarizer (121) is provided between said imaging lens and said combiner (123), said circular polarizer (121) comprising a second quarter wave retarder (121) comprising a second quarter wave retarder having a fast axis which is oriented 90 degrees relative to the fast axis of the first quarter wave retarder (113) and further comprising a linear polarizer disposed to transmit said linearly polarized imaging illumination; wherein ambient light passing through said circular polarizer (121) and being reflected back to said circular polarizer (121) is substantially blocked by said second quarter wave retarder and said linear polarizer.

(Dwg.1,2/3)

Abstract (Equivalent): US 5066108 A

The display has a linearly polarised image source, a quarter-wave retarder for transforming the linearly polarised illumination to circularly polarised illumination, imaging elements responsive to the circularly polarized illumination for producing viewable circularly polarized imaging illumination, and a circular imaging illumination to viewable linearly polarised imaging illumination.

The circular polariser includes a quarter-wave retarder for transforming the circular light to linearly polarized light, and a linear polariser configured to transmit the linearly polarised imaging illumination.

Contrast enhancement is achieved by the circular polariser which functions to block ambient light reflected from the front element of the imaging elements as a result of transmission through the circular polariser.

ADVANTAGE - High throughput contrast enhancement. (6pp)

ASRC Searcher: Jeanne Horrigan

Serial 10/602110

July 20, 2004

40

Derwent Class: P81; U14; X22

International Patent Class (Main): G02F-001/13; G02F-001/1335

File 348:EUROPEAN PATENTS 1978-2004/Jul W02

File 349:PCT FULLTEXT 1979-2002/UB=20040715,UT=20040708

Set	Items	Description
S1	333	POLARI?ED() (LENS?? OR GLASS?? OR EYEWEAR OR SUNGLASS?? OR - EYEGLOSS??)
S2	510502	VISUAL() INDICIA OR IMAGE OR IMAGES OR PHOTO OR PHOTOS OR P-HOTOGRAPH? ? OR SNAPSHOT? ? OR PICTURE OR PICTURES
S3	290820	FILM
S4	646711	COAT??? OR LAYER??
S5	11731	SINGLE() (PLANE OR AXIS) (2W) LIGHT OR LIGHT (2W) SURFACE
S6	246806	REFLECT?
S7	8349	(AMBIENT OR UNPOLARI?ED OR RANDOM??()) POLARI?ED() LIGHT
S8	509218	TRANSMIT? OR TRANSMISSION
S9	3448	GLARE
S10	20	S1(S) S2(S) S3:S4
S11	172	S5(S) S7
S12	1	S10(S) S11
S13	210511	DEMONSTRAT?
S14	734	S13(5N) (S6 OR S9)
S15	0	S1(S) S14
S16	2	S1 AND S14
S17	19	S10 NOT (S12 OR S16)

12/3,K/1 (Item 1 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00313483

Projection type liquid crystal display device

Flussigkristall-Anzeigevorrichtung vom Projektionstyp

Dispositif d'affichage a cristaux liquides du type a projection

PATENT ASSIGNEE:

SHARP KABUSHIKI KAISHA, (260710), 22-22 Nagaike-cho Abeno-ku, Osaka 545,

(JP), (applicant designated states: DE;FR;GB)

INVENTOR:

Takafuji, Yutaka, 9-11-403, Ukyo 5-chome, Nara-shi Nara-ken, (JP)

LEGAL REPRESENTATIVE:

Brown, Kenneth Richard et al (28831), R.G.C. Jenkins & Co. 26 Caxton

Street, London SW1H 0RJ, (GB)

PATENT (CC, No, Kind, Date): EP 295913 A2 881221 (Basic)

EP 295913 A3 900425

EP 295913 B1 940406

APPLICATION (CC, No, Date): EP 88305506 880616;

PRIORITY (CC, No, Date): JP 87150391 870616

DESIGNATED STATES: DE; FR; GB

INTERNATIONAL PATENT CLASS: G02F-001/13

ABSTRACT WORD COUNT: 84

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9712W1	410
CLAIMS B	(German)	9712W1	365
CLAIMS B	(French)	9712W1	452
SPEC B	(English)	9712W1	2211
Total word count - document A			0
Total word count - document B			3438
Total word count - documents A + B			3438

...SPECIFICATION 31 comprises a sheet material 32 made of, say, vinyl chloride (such as PVC), a **reflection surface** 33 formed by applying an aluminum sheet on the sheet material 32, a sheet 34...
...scattering layers in stripe, the sheet 34 applied on the reflection surface 33 to prevent **the** reflected light from scattering in the vertical direction of the screen 31, and a polarizing...
...direction of the screen 31 when the P-polarized light component enters the liquid crystal **display** element 28.
The light projected onto the screen 31 by the projector 22 is reflected **by** the reflection **surface** 33 and observed from the side indicated by the the arrow Y through the polarizing...

16/3,AB,K/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.
00850582
IMPROVED MICROPRISM SHEETS AND PRIVACY SCREENS UTILIZING SAME
FEUILLES A MICROPRISMES AMELIOREES ET ECRANS DE PROTECTION D'INTIMITE
FAISANT INTERVENIR LESDITES FEUILLES
Patent Applicant/Assignee:
GREENBERG Edward, 50 South Buckhout Street, Irvington, NY 10533, US, US
(Residence), US (Nationality)
Patent Applicant/Inventor:
MYERS Kenneth J, 50 South Buckhout Street, Irvington, NY 10533, US, US
(Residence), US (Nationality)
Legal Representative:
URCIA Benjamin E (et al) (agent), Bacon & Thomas, PLLC, 4th Floor, 625
Slaters Lane, Alexandria, VA 22314, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200184212 A1 20011108 (WO 0184212)
Application: WO 2001US10812 20010418 (PCT/WO US0110812)
Priority Application: US 2000559177 20000427
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU
CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE
SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 6097
English Abstract
A privacy screen, an image separating screen suitable for creating stereoscopic images, and an image interlacing screen also suitable for use in creating stereoscopic images, are prepared by modifying a standard microprism sheet (1) of the type having a plurality of v-shaped grooves (2). The modifications may include altering the transmission properties of at least one surface (3, 4) of each groove (2) in such a manner that light transmitted in different directions has different properties, for example by attenuating light in one plane (3) and not in the second plane (4) to create a privacy screen, or by altering polarizations in at least one of the two planes (3,4).
Fulltext Availability: Detailed Description
Detailed Description

Serial 10/602110

July 20, 2004

... alternatives involving treatment of a portion of the facets or the entire facets to reduce **reflections**, **demonstrating** a lack of concern or recognition of the potential to use the methods disclosed therein...obtained when the screen is placed in front of polarized light source or, alternatively, when **polarized glasses** are used to view the screen.

The objectives of the invention are also achieved, in...

16/3,AB,K/2 (Item 2 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00818514

PRIVACY SCREENS AND STEREOSCOPIC EFFECTS DEVICES UTILIZING MICROPRISM SHEETS

ECRANS MASQUES ET EFFETS STEREOSCOPIQUES FAISANT APPEL A DES FEUILLES A MICROPRISMES

Patent Applicant/Inventor:

MYERS Kenneth J, 50 South Buckhout Street, Irvington, NY 10533, US, US
(Residence), US (Nationality)

Legal Representative:

URCIA Benjamin E (et al) (agent), Bacon & Thomas, PLLC, 4th floor, 625
Slaters Lane, Alexandria, VA 22314, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200151980 A1 20010719 (WO 0151980)

Application: WO 2001US6 20010112 (PCT/WO US0100006)

Priority Application: US 2000481942 20000113

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ

DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG

SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 7750

English Abstract

A privacy screen (1), an image separating screen suitable for creating stereoscopic images (20, 21), and an image interlacing screen also suitable for use in creating stereoscopic images (26, 27), are prepared by modifying a standard microprism sheet of the type having a plurality of v-shaped grooves (2). The modifications may include altering the transmission properties of at least one surface of each groove in such a manner that light transmitted in different directions has different properties, for example by attenuating light in one plane (3) and not in the second plane (4) to create a privacy screen, or by altering polarizations in the two planes so as to create a stereoscopic effect. The modifications may also include arranging the microprism sheet to interlace images from different sources.

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... image source is an interlaced image, @@he oppositely polarized light may be recombined by corresponding **polarized lenses** 3 to provide a stereoscopic effect. When a microprism sheet

having a groove pitch corresponding...alternatives involving treatment of a portion of the facets or the entire facets to reduce reflections , demonstrating a lack of concern or recognition of the potential to use the methods disclosed therein...polarize light in opposite directions, and to direct the 25 polarized light towards corresponding oppositely polarized eyeglass lenses 22 and 23. Because lens 22 will only pass light transmitted at a first...
...an especially simple manner.
one advantage of this arrangement is that a person wearing the polarized lenses 22 and 23, made possible by the use of a microprism sheet including polarizing surfaces...

Claim

... direction, and whereby when an interlaced image transmitted through said screen is viewed through oppositely polarized eyeglass lenses, a stereoscopic effect is obtained.
11 An image transmission device as claimed in claim...

17/6/1 (Item 1 from file: 348)
01400994
MULTIPLE SHARING TYPE DISPLAY DEVICE

17/6/4 (Item 4 from file: 348)
00985791
Stereoscopic television system

17/6/5 (Item 5 from file: 348)
00918227
Substrate for liquid crystal display and method of manufacturing the same

17/6/6 (Item 6 from file: 348)
00871210
Recording medium, optical disc apparatus and method of information recording

17/6/7 (Item 7 from file: 348)
00423837
Full colour three-dimensional projection display.

17/6/8 (Item 1 from file: 349)
01135122 **Image available**
APPARATUS FOR RE-ORDERING VIDEO DATA FOR DISPLAYS USING TWO TRANSPOSE STEPS AND STORAGE OF INTERMEDIATE PARTIALLY RE-ORDERED VIDEO DATA

17/6/9 (Item 2 from file: 349)
01058432 **Image available**
STEREOSCOPIC VIDEO SEQUENCES CODING SYSTEM AND METHOD

17/6/10 (Item 3 from file: 349)
01035084 **Image available**
GLASSES AND GLASSES LENSES FOR STEREOSCOPIC IMAGE AND SYSTEM USING THE SAME

17/6/11 (Item 4 from file: 349)
00989269 **Image available**
PHOTOCHROMIC LIGHT-POLARIZING LENS FOR SUNGLASS AND METHOD FOR PRODUCING

Serial 10/602110

July 20, 2004

THE SAME

17/6/12 (Item 5 from file: 349)

00778317 **Image available**

COMMUNICATIONS SYSTEM

17/6/14 (Item 7 from file: 349)

00302660 **Image available**

LASER ILLUMINATED DISPLAY SYSTEM

17/6/15 (Item 8 from file: 349)

00269320 **Image available**

METHODS AND APPARATUS FOR IMAGE PROCESSING

17/6/16 (Item 9 from file: 349)

00267070

WAVEGUIDE HOLOGRAPHIC TELLTALE DISPLAY

17/6/17 (Item 10 from file: 349)

00239180

THREE DIMENSIONAL OPTICAL VIEWING SYSTEM

17/6/18 (Item 11 from file: 349)

00180375

CAMERA AND METHOD OF PRODUCING AND DISPLAYING A 3-D MOTION PICTURE

17/6/19 (Item 12 from file: 349)

00117623 **Image available**

APPARATUS AND METHODS FOR PROVIDING THREE-DIMENSIONAL IMAGES FOR PHOTOGRAPHY

17/3,AB,K/2 (Item 2 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01019431

PROCESS FOR PRODUCING AN ADHERENT POLYMERIC LAYER ON POLYMERIC SUBSTRATES AND ARTICLES PRODUCED THEREBY**VERFAHREN ZUR HERSTELLUNG EINER HAFTENDEN POLYMERSCHICHT AUF POLYMER-SUBSTRATEN UND DAMIT HERGESTELLTE GEGENSTANDE****PROCEDE SERVANT A PRODUIRE UNE COUCHE POLYMERES ADHESIVE SUR DES SUBSTRATS POLYMERES ET ARTICLES FABRIQUES AU MOYEN DE CE PROCEDE****PATENT ASSIGNEE:**

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PATENT (CC, No, Kind, Date): EP 994911 A1 000426 (Basic)

EP 994911 B1 030827

WO 99000448 990107

Serial 10/602110

July 20, 2004

APPLICATION (CC, No, Date): EP 98930228 980615; WO 98US12411 980615
 PRIORITY (CC, No, Date): US 51197 P 970630; US 68372 P 971222; US 92086
 980605

DESIGNATED STATES: CH; DE; ES; FR; GB; IE; LI; NL

INTERNATIONAL PATENT CLASS: C08J-007/12

NOTE: No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200335	880
CLAIMS B	(German)	200335	902
CLAIMS B	(French)	200335	1017
SPEC B	(English)	200335	9145

Total word count - document A 0

Total word count - document B 11944

Total word count - documents A + B 11944

...SPECIFICATION 0 to 10 weight percent of a catalyst, and from 2 to 20 weight percent **photochromic** compound(s). The resulting polymerizable composition is applied by spin **coating** onto the surface of an optionally tinted/ **polarized lens**, e.g., a lens prepared from a CR-39(R) monomer, having reactive groups on...

...surface selected from the group consisting of amino, hydroxyl, thiol and combinations thereof. The resulting **layer** is cured to produce an adherent **photochromic layer** having a thickness of approximately 20 microns.

In an example of a second contemplated embodiment...the fourth contemplated embodiment to produce an optionally tinted and polarized lens having combined adherent **layers**. In the examples of the second, third, fourth and fifth contemplated embodiments, **photochromic** compounds may be added to produce a **photochromic layer**.

The present invention is more particularly described in the following examples, which are intended as...C. The assembly was removed from the oven, tape and backmold were removed and the **polarized lens** with **photochromic** overlay was separated from the front mold by gently sliding a thin metal piece (i...

...under the PVC gasket and lifting with continuous pressure. The thickness of the resulting adherent **layer** was approximately 170 (+-) 20 microns.

Part D

The procedure of Part C was followed except...

17/3,AB,K/3 (Item 3 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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01014825

Method of forming glass having integral polarizing and non-polarizing regions

Verfahren zum Herstellen von Glasgegenstanden welche integriert polarisierende und nicht polarisierende Bereiche aufweisen

Procede pour former des articles en verre exhibitant des regions polarisantes et non-polarisantes integrees

PATENT ASSIGNEE:

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PATENT (CC, No, Kind, Date): EP 909744 A2 990421 (Basic)
EP 909744 A3 990428
EP 909744 B1 011205

APPLICATION (CC, No, Date): EP 98116599 980902;

PRIORITY (CC, No, Date): US 63741 P 971017

DESIGNATED STATES: DE; FR; GB; NL

INTERNATIONAL PATENT CLASS: C03C-003/064; C03C-003/11; C03C-004/06;
C03C-008/10; C03C-008/14; C03C-014/00; C03C-017/04; C03C-023/00;
G02B-005/30

ABSTRACT EP 909744 A3

Method of making polarizing glass having integral polarizing and
non-polarizing regions disclosed.

Method of forming glass having integral polarizing and non-polarizing
regions by:

- a) providing a phase-separable, copper and silver-containing glass,
said glass being phase separable by virtue of the presence therein of
silver-halide particles;
- b) elongating the glass under stress such that the particles are
elongated and aligned in the direction of the stress;
- c) applying a protective material to the surface of the glass to form
a pattern of protected and unprotected regions, said material being
capable of blocking a reducing gas;
- d) subjecting the glass to a reducing gas atmosphere to reduce the
reducible phase in the unprotected regions of the glass and thereby
render the glass in said regions polarizing; and
- e) removing the protective material from the glass to reveal
underlying non-polarizing glass; characterised by the protective material
comprising a glass frit mixture.

ABSTRACT WORD COUNT: 154

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199916	424
CLAIMS B	(English)	200149	421
CLAIMS B	(German)	200149	440
CLAIMS B	(French)	200149	556
SPEC A	(English)	199916	2316
SPEC B	(English)	200149	2315
Total word count - document A			2740
Total word count - document B			3732
Total word count - documents A + B			6472

...SPECIFICATION and exposed to ultraviolet radiation through a mask
containing the desired pattern of polarized/non- **polarized glass** .
After exposure, the glass is developed to remove either the exposed or
non-exposed frit...
...in the developer solution so that after the unexposed areas have been
developed, a negative **image** of the original pattern is obtained. After
the frit **layer** is sintered, the glass is subjected to a reducing gas
treatment to reduce silver ions...
...removed by any appropriate method such as by acid etching to reveal the
underlying non- **polarized glass** . The resulting glass is thus

characterized by a pattern of polarized and non- **polarized glass** regions.

Examples of useful photoresist materials for

...SPECIFICATION example of this embodiment, silver-containing glass having a phase separable silver halide particles is **coated** with a glass frit/photoresist mixture which is applied to the glass surface using any practical method such as by spraying, stencil, doctor knife **coating**, screen printing, spin or dip **coating**. Preferably, the slurry should exhibit good flow viscosity, and be capable of forming a **coating** of uniform thickness with little or no pinholes. The **coated glass** is then dried and exposed to ultraviolet radiation through a mask containing the desired pattern of polarized/non- **polarized glass**. After exposure, the glass is developed to remove either the exposed or non-exposed frit...
...in the developer solution so that after the unexposed areas have been developed, a negative **image** of the original pattern is obtained. After the frit **layer** is sintered, the glass is subjected to a reducing gas treatment to reduce silver ions...removed by any appropriate method such as by acid etching to reveal the underlying non- **polarized glass**. The resulting glass is thus characterized by a pattern of polarized and non- **polarized glass** regions.

Examples of useful photoresist materials for forming the frit glass slurry include certain materials...

17/3,AB,K/13 (Item 6 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00469514

PROCESS FOR PRODUCING AN ADHERENT POLYMERIC LAYER ON POLYMERIC SUBSTRATES
AND ARTICLES PRODUCED THEREBY

PROCEDE SERVANT A PRODUIRE UNE COUCHE POLYMERE ADHESIVE SUR DES SUBSTRATS
POLYMERES ET ARTICLES FABRIQUES AU MOYEN DE CE PROCEDE

Patent Applicant/Assignee:

PPG INDUSTRIES OHIO INC,

Inventor(s):

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Patent and Priority Information (Country, Number, Date):

Patent: WO 9900448 A1 19990107

Application: WO 98US12411 19980615 (PCT/WO US9812411)

Priority Application: US 9751197 19970630; US 9768372 19971222; US
9892086 19980605

Designated States: AU BR CN KR MX SG AT BE CH CY DE DK ES FI FR GB GR IE IT
LU MC NL PT SE

Fulltext Word Count: 11588

English Abstract

Described is a process for producing adherent layer(s) on organic polymeric substrates following the steps of (a) treating the surface of the polymeric substrate to provide reactive groups; (b) applying to the surface a polymerizable composition of organic anhydrides, isocyanates and/or a mixture thereof that is substantially free of organosiloxanes; and (c) curing the polymerizable coating. Further steps include applying an additional layer which is substantially free of organosiloxanes and that may or may not contain the polymerizable composition of the present invention. Also described are products produced by the process that may

be transparent, tinted, tinted and polarized or photochromic.

Fulltext Availability: Detailed Description

Detailed Description

... 0 to 10 weight percent of a catalyst, and from 2 to 20 weight percent

photochromic compound(s). The resulting polymerizable composition is applied by spin **coating** onto the surface of an optionally tinted/ **polarized lens**, e.g., ...surface selected from the group consisting of amino, hydroxyl, thiol and combinations thereof. The resulting **layer** is cured to produce an adherent **photochromic layer** having a thickness of approximately 20 microns

In an example of a second contemplated embodiment...the fourth contemplated embodiment to produce

an optionally tinted and polarized lens having combined adherent **layers**. In the examples of the second, third, fourth and fifth contemplated embodiments, **photochromic** compounds may be added to produce a **photochromic layer**

The present invention is more particularly described in the following examples, which are intended as...82degreesC. The assembly was removed from

the oven, tape and backmold were removed and the **polarized lens** with **photochromic** overlay was separated from the front mold by gently sliding a thin metal piece (i...

...under the PVC gasket and lifting with continuous pressure. The thickness of the resulting adherent **layer** was approximately 170 +/- 20 microns

Part D

The procedure of Part C was followed except...